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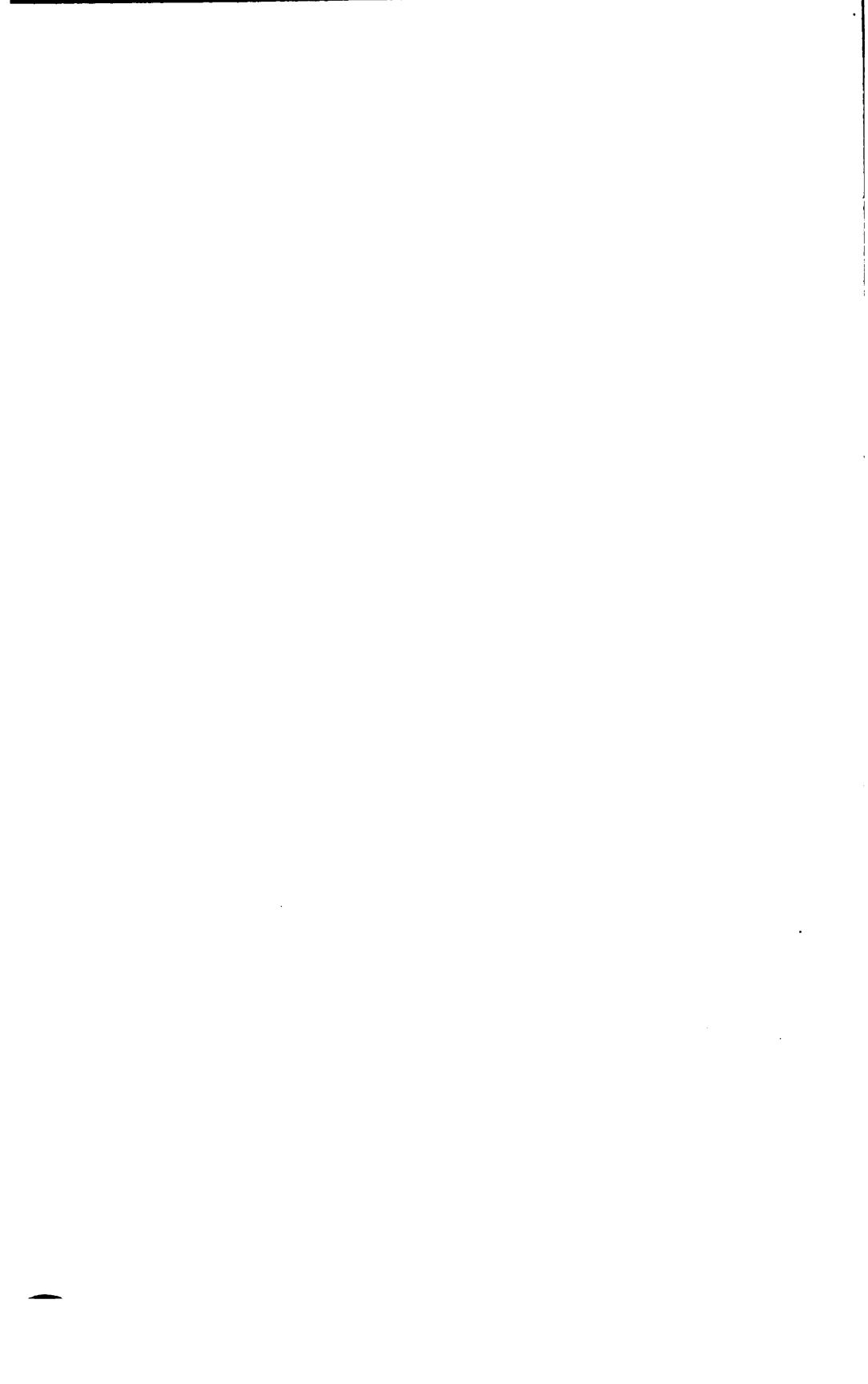
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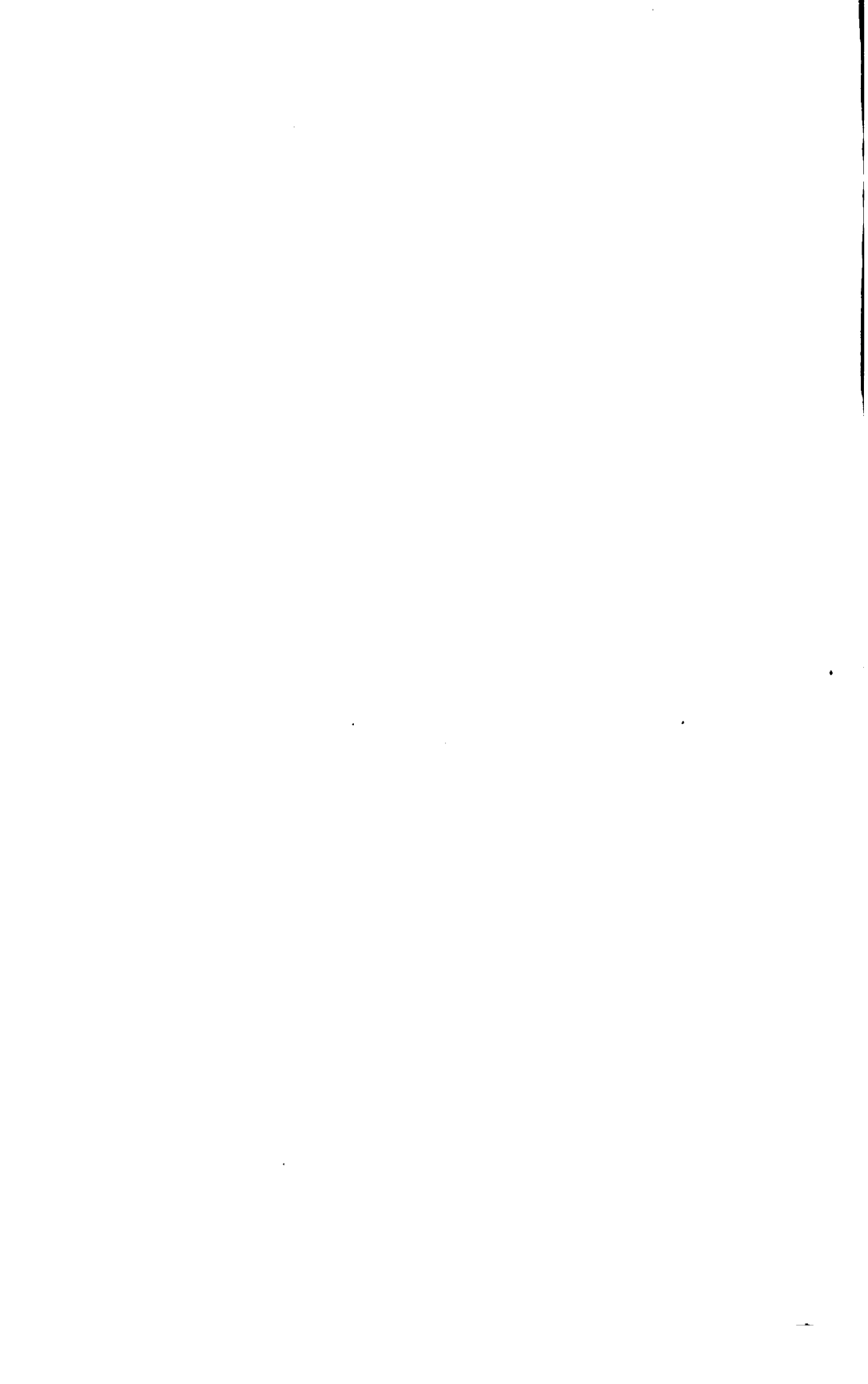
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TRANSACTIONS
OF THE
MEDICAL SOCIETY
OF THE
STATE OF NEW YORK.
FOR THE YEAR 1898.



PUBLISHED BY THE SOCIETY.
1898.

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MEDICAL SOCIETY

OF

THE STATE OF NEW YORK.

ORGANIZATION.

By an act of the Legislature passed April 4, 1806, and subsequently amended, the Medical Society of the State of New York is organized as follows :

The Society is composed of delegates, permanent members, and honorary members.

I. DELEGATES.

Delegates are sent by county medical societies, certain medical colleges, incorporated voluntary medical societies, and by the New York Academy of Medicine. Each county medical society is entitled to as many delegates as there are Assembly districts in said county ; they are to be elected by ballot at annual meetings of the societies. Each incorporated medical college, which, by its charter, may be represented in this Society, is entitled to one delegate ; incorporated voluntary medical societies, which are admitted to representation, are entitled to one delegate each, and the New York Academy of Medicine to five delegates. No one can be admitted as a delegate who is not a member of a county medical society.

The organizations entitled to representation in this Society are required by its by-laws to pay to the Treasurer, for the use of the Society, five dollars annually for each delegate they are entitled to send ; and no delegate is permitted to inscribe his name in the register, at the annual meeting, until the dues against the organization he represents have been paid.

The term for which delegates are elected is three years, and, as nearly as possible, one-third of the whole number is annually elected. The credentials of all delegates must be duly authenticated by the seal of the organization which they represent, and the signature of the Secretary.

The following table exhibits the classification of counties, colleges, and incorporated societies, as respects the election of delegates, and shows the number of delegates to which each is entitled, and when the present delegations become vacant :

VACANT Jan. 22, 1899.	VACANT Jan. 22, 1900.	VACANT Jan. 22, 1901.
Genesee . . . 1	Albany . . . 4	Allegany . . . 1
Livingston . . . 1	Cattaraugus . . . 2	Broome . . . 2
Montgomery . . . 1	Cayuga . . . 2	Chautauqua . . . 2
New York . . . 35	Chemung . . . 1	Chenango . . . 1
Oneida . . . 3	Dutchess . . . 2	Clinton . . . 1
Orleans . . . 1	Essex . . . 1	Columbia . . . 1
Oswego . . . 2	Fulton . . . 1	Cortland . . . 1
Schuyler . . . 1	Greene . . . 1	Delaware . . . 1
Seneca . . . 1	Jefferson . . . 2	Erie . . . 8
Wyoming . . . 1	Lewis . . . 1	Franklin . . . 1
Yates . . . 1	Monroe . . . 4	Herkimer . . . 1
College of Physicians and Surgeons of New York . . . 1	Niagara . . . 2	Kings . . . 21
Long Island College Hospital . . . 1	Onondaga . . . 4	Ontario . . . 1
Niagara University, Med. Department . 1	Orange . . . 2	Madison . . . 1
Medical Department of University of Buffalo 1	Otsego . . . 1	Rockland . . . 1
College of Medicine, Syracuse University 1	Putnam . . . 1	St. Lawrence . . . 2
Bellevue Hospital Medical College . 1	Queens . . . 3	Saratoga . . . 1
New York Post-Gradu- ate Medical School and Hospital . . 1	Rensselaer . . . 3	Suffolk . . . 2
Rochester Pathological Society . . . 1	Richmond . . . 1	Ulster . . . 2
Society of Physicians of Canandaigua . 1	Schenectady . . . 1	Washington . . . 1
Practitioners' Society of Rochester . . 1	Schoharie . . . 1	Wayne . . . 1
Utica Medical Club . 1	Steuben . . . 2	University of City of New York, Medical Department . . 1
	Sullivan . . . 1	Medical Association of Northern New York 1
	Tioga . . . 1	Amsterdam Medical Society . . . 1
	Tompkins . . . 1	Long Island Medical Society . . . 1
	Warren . . . 1	Medical Association City Mt. Vernon and Environs . . 1
	Westchester . . . 3	Utica Medical Library Association . . . 1
	New York Academy of Medicine . . . 5	
	Albany Med. College . 1	
	New York Polyclinic . 1	
	Elmira Academy of Medicine . . . 1	
	Syracuse Academy of Medicine . . . 1	
Total . . . 59	Total . . . 58	Total . . . 59

II. PERMANENT MEMBERS.

Permanent members are elected at the annual meetings of this Society, the names of those eligible being presented by the Secretary upon application. Eligibility to permanent membership is secured by service as a delegate for three years, and attendance and registry as

such upon at least two annual meetings of this Society. Permanent members-elect must be active members of their county societies.

Each permanent member on his election is required to pay an initiation fee of five dollars, and also the annual dues of a permanent member for the year in which he was elected; failure to pay the initiation fee within one year after election renders the election void. Permanent members are required to pay annually five dollars to the Treasurer, for the use of the Society, and no permanent member is allowed to inscribe his name in the register, at the meetings of the Society, who has not paid his dues for that year, and all arrearages. All annual dues are payable at the beginning of the session of the annual meeting of the Society.

Only delegates and permanent members whose names are inscribed in the register are entitled to vote at the meetings of the Society.

III. HONORARY MEMBERS.

This Society may, at the annual meeting, elect eminent physicians from other States, or from foreign countries, as honorary members. They must have been nominated at a previous annual meeting, and those elected shall not exceed six in number in any year.

The Society may invite physicians who are present at any meeting to take seats as guests, but no physician of this State shall be so invited who is not a member of a county medical society entitled to representation in this Society.

Honorary members and invited guests have the privilege of a seat at the meetings, and of presenting papers, and of taking part in discussions, but they shall not vote on any question nor be eligible to any office. Papers presented by them require a special vote by the Society, of reference to the Committee of Publication, in order to appear in the published *Transactions*.

MEETINGS.

The annual meetings of this Society are held in the city of Albany, on the last Tuesday in January in each year, and other meetings at such time and place as may be determined by a majority of the Society convened at any legal meeting. Fifteen members constitute a quorum for the transaction of business. The Society may, at its pleasure, change the time of holding its annual meeting, in accordance with the provisions of Chapter V., Laws of 1876, being an "Act to enable the Medical Society of the State of New York to alter the time of holding its annual meeting."

THE JUDICIAL DISTRICTS OF THE STATE.

The division of the State into eight Districts, which has for many years followed the lines of the *Senatorial Districts established in 1836*, is made, by amendment of the By-laws at the meeting of the Society in 1898, to follow the lines of the *Judicial Districts* of the State, established by the act of Legislature of 1847, and since altered under Acts of 1857 and 1876. These districts are given in the following table, and in connection with the name of each county is placed a figure to indicate the number of Assembly Districts it contains, according to the present revised Constitution of the State, and the corresponding number of delegates from each county medical society to this Society. Each District, through the members from it in attendance at an annual meeting, elects a member of the Committee of Nominations:

First Judicial District.—New York County, 35.

Second Judicial District.—Kings, 21; Queens, 3; Suffolk, 2; Richmond, 1; Westchester, 3; Rockland, 1; Putnam, 1; Orange, 2; Dutchess, 2.

Third Judicial District.—Albany, 4; Rensselaer, 3; Schoharie, 1; Greene, 1; Columbia, 1; Ulster, 2; Sullivan, 1.

Fourth Judicial District.—St. Lawrence, 2; Franklin, 1; Clinton, 1; Essex, 1; Hamilton and Fulton, 1; Montgomery, 1; Schenectady, 1; Saratoga, 1; Warren, 1; Washington, 1.

Fifth Judicial District.—Onondaga, 4; Oneida, 3; Herkimer, 1; Oswego, 2; Lewis, 1; Jefferson, 2.

Sixth Judicial District.—Otsego, 1; Delaware, 1; Madison, 1; Chenango, 1; Cortland, 1; Tompkins, 1; Schuyler, 1; Chemung, 1; Tioga, 1; Broome, 2.

Seventh Judicial District.—Monroe, 4; Wayne, 1; Cayuga, 2; Seneca, 1; Yates, 1; Ontario, 1; Livingston, 1; Steuben, 2.

Eighth Judicial District.—Erie, 8; Niagara, 2; Orleans, 1; Genesee, 1; Wyoming, 1; Allegany, 1; Cattaraugus, 2; Chautauqua, 2.

OFFICERS AND COMMITTEES.

ELECTED JANUARY 27, 1896.

PRESIDENT.

JOHN O. ROE, Rochester.

VICE-PRESIDENT.

EDWARD F. BRUSH, Mount Vernon.

SECRETARY.

FREDERIC C. CURTIS, Albany.

TREASURER.

CHARLES H. PORTER, Albany.

COMMITTEE OF ARRANGEMENTS.

SAMUEL B. WARD, Albany. WILLIAM J. NELLIS, Albany.
REYNOLD W. WILCOX, New York.

COMMITTEE ON BY-LAWS.

H. D. WEY, Elmira. NATHAN JACOBSON, Syracuse.
F. C. CURTIS, Albany.

COMMITTEE ON HYGIENE.

HENRY R. HOPKINS, Buffalo. J. M. MOSHER, Albany.
E. H. BARTLEY, Brooklyn. O. W. PECK, Oneonta.
C. E. BRUCE, New York. H. F. HART, Shrub Oak.
GEORGE SEYMOUR, Utica.

COMMITTEE ON LEGISLATION.

FRANK VAN FLEET, New York. ARTHUR G. ROOT, Albany.
ERNEST WENDE, Buffalo.

COMMITTEE ON ETHICS.

EVARTS M. MORRELL, New York. GEORGE McNAUGHTON, Brooklyn.
LOUIS A. WEIGEL, Rochester.

COMMITTEE ON PRIZE ESSAYS.

J. M. VAN COTT, Brooklyn. ANDREW MACFARLANE, Albany.
W. S. CHEESMAN, Auburn.

COMMITTEE ON PUBLICATION.

F. C. CURTIS, Albany. DANIEL LEWIS, New York.
CHARLES H. PORTER, Albany. W. W. POTTER, Buffalo.

MEMBERS IN ATTENDANCE AT THE ANNUAL MEETING OF 1898.

DELEGATES.

Albany County :

James F. Barker, Albany.
Charles E. Davis, Albany.
A. Macfarlane, Albany.
Arthur G. Root, Albany.

Allegany County :

H. F. Gillette, Cuba.

Broome County :

B. E. Radeker, Deposit.

Cayuga County :

M. P. Conway, Auburn.
E. S. Forman, Auburn.

Chautauqua County :

E. S. Rich, Kennedy.

Chemung County :

W. E. Colegrove, Horseheads.

Chenango County :

Louis P. Blair, McDonough.

Clinton County :

J. G. McKinney, Plattsburgh.

Columbia County :

James W. King, Stottsville.

Cortland County :

Francis W. Higgins, Cortland.

Dutchess County :

H. E. Allison, Fishkill.
J. E. Sadlier, Poughkeepsie.

Erie County :

Thomas B. Carpenter, Buffalo.
Arthur W. Hurd, Buffalo.
Eugene A. Smith, Buffalo.
J. G. Thompson, Angola.
G. W. Wende, Buffalo.
Herbert U. Williams, Buffalo.

Franklin County :

P. F. Dolphin, Malone.

Fullon County :

David V. Still, Johnstown.

Greene County :

E. H. Merriam, Coxsackie.

Herkimer County :

Chas. H. Glidden, Little Falls.

Jefferson County :

O. C. Eastman, Watertown.

Kings County :

H. A. Alderton, Brooklyn.
Elias H. Bartley, Brooklyn.
William C. Braislin, Brooklyn.
Arthur C. Brush, Brooklyn.
Albert C. Bunn, Brooklyn.
Wm. F. Campbell, Brooklyn.
J. M. Clayland, Brooklyn.
H. P. de Forest, Brooklyn.
Z. F. Dunning, Brooklyn.
Gordon R. Hall, Brooklyn.
Henry T. Hotchkiss, Brooklyn.
S. J. McNamara, Brooklyn.
John Rankin, Brooklyn.
Peter Scott, Brooklyn.
Frederic J. Shoop, Brooklyn.
Wm. Simmons, Brooklyn.
James P. Warbasse, Brooklyn.
H. F. Williams, Brooklyn.

Monroe County :

Alfred W. Henckell, Rochester.
Charles D. Young, Rochester.

Montgomery County :

C. W. De Baun, Fonda.

New York County :

Joshua L. Barton, New York.
Dillon Brown, New York.
Walter Lester Carr, New York.

New York County :

B. Farquhar Curtis, New York.
 Thomas Darlington, New York.
 H. S. Drayton, New York.
 Henry H. Forbes, New York.
 Emil Mayer, New York.
 Grace P. Murray, New York.
 William L. Stowell, New York.
 W. B. Vanderpoel, New York.
 Frank Van Fleet, New York.

Oneida County :

F. H. Peck, Utica.
 S. C. Maxson, Utica.
 Charles E. Smith, Whitestown.

Onondaga County :

Orson G. Dibble, Pompey.
 D. H. Murray, Syracuse.

Ontario County :

B. C. Loveland, Clifton Springs.

Orange County :

W. F. Gleason, Newburgh.
 D. B. Hardenburgh, Port Jervis.

Otsego County :

John H. Moon, Cooperstown.

Putnam County :

J. E. Reed, Carmel.

Queens County :

C. G. J. Finn, Hempstead.
 E. D. Skinner, Mineola.

Rensselaer County :

G. A. Bradbury, Lansingburgh.
 Archibald Buchanan, Troy.
 M. D. Dickinson, Troy.

Richmond County :

H. C. Johnson, New Brighton.

St. Lawrence County :

J. H. Brownlow, Ogdensburgh.

Schenectady County :

Chas. C. Duryea, Schenectady.

Schoharie County :

A. L. Haines, Schoharie.

Seneca County :

F. M. Severson, Seneca Falls.

Steuben County :

B. R. Wakeman, Hornellsville.

Tompkins County :

Edward Meany, Ithaca.

Ulster County :

A. A. Stern, Rondout.

Warren County :

R. J. Eddy, Glens Falls.

Wayne County :

M. A. Veeder, Lyons.

Westchester County :

Hickson F. Hart, Shrub Oak.
 Evarts M. Morrell, City Island.

Yates County :

C. M. Van Dyke, Himrod.

New York Academy of Medicine :

Chas. H. Richardson, New York.

Reginald H. Sayre, New York.

New York Post-Graduate Medical School and Hospital :

Ramon Guiteras, New York.

New York Polyclinic :

J. Riddle Goffe, New York.

Medical Department, Union University :

H. Van Rensselaer, Albany.

Medical Association of Northern New York :

E. S. McClellan, Saranac Lake.

Rochester Pathological Society :

William B. Jones, Rochester.

Elmira Academy of Medicine :

T. A. Dundas, Elmira.

Utica Medical Library Association :

G. Alder Blumer, Utica.

Society of Physicians of Canandaigua :

John H. Jewett, Canandaigua.

Amsterdam Medical Society :

E. F. Bronk, Amsterdam.

Medical Association of the City of Mt.

Vernon and Environs :

George A. Peck, New Rochelle.

PERMANENT MEMBERS.

Seneca D. Powell, New York.	William S. Ely, Rochester.
Lucien Howe, Buffalo.	Wendell C. Phillips, New York.
John Gerin, Auburn.	Maurice J. Lewi, New York.
H. W. Carpenter, Oneida.	William Hailes, Albany.
R. J. Wilding, Malone.	W. I. Gordon, West New Brighton.
John O. Roe, Rochester.	R. C. M. Page, New York.
E. F. Brush, Mount Vernon.	Daniel Lewis, New York.
William Maddren, Brooklyn.	W. H. Bailey, Albany.
W. J. Nellis, Albany.	Willis G. Tucker, Albany.
E. N. Carpenter, New York.	T. F. C. Van Allen, Albany.
George T. Wetmore, New York.	Wallace J. Herriman, Rochester.
Louis N. Lanehart, Hempstead.	Theodore Dunham, New York.
H. D. Wey, Elmira.	Lewis Balch, Albany.
Henry Flood, Elmira.	W. D. Garlock, Little Falls.
Ernest Wende, Buffalo.	F. W. Shaffer, Gloversville.
Charles M. Lefler, Gloversville.	W. O. Stillman, Albany.
William Browning, Brooklyn.	A. M. Phelps, New York.
George Seymour, Utica.	W. B. Vanderpoel, New York.
Edward B. Angell, Rochester.	Arthur L. Fisk, New York.
A. J. Browne, Utica.	M. T. Babcock, Hammondsport.
Samuel Lloyd, New York.	W. M. Gibson, Utica.
Landon Carter Gray, New York.	O. D. Ball, Albany.
Robert J. Morrison, Brooklyn.	E. L. Mooney, Syracuse.
L. Duncan Bulkley, New York.	H. A. Barney, Belmont.
F. C. Curtis, Albany.	Joseph D. Craig, Albany.
Theodore D. Mills, Middletown.	Eli H. Long, Buffalo.
A. R. Simons, Utica.	P. Collard, Sing Sing.
J. H. Pryor, Buffalo.	Henry L. Elsner, Syracuse.
A. H. Mambert, Kingston.	F. L. Classen, Albany.
F. R. Sturgis, New York.	J. B. Ransom, Dannemora.
James D. Spencer, Watertown.	Edward D. Fisher, New York.
Chauncey P. Biggs, Ithaca.	Peter L. Suits, Tribes Hill.
F. W. Sears, Syracuse.	William L. Cuddeback, Port Jervis.
James M. Winfield, Brooklyn.	Frank S. Low, Pulaski.
J. T. Duryea, Brooklyn.	R. Loughran, Kingston.
T. Oliver Tait, Rochester.	M. Felter, Troy.
David Webster, New York.	Nathan Jacobson, Syracuse.
Reynold W. Wilcox, New York.	F. W. Slocum, Camillus.
W. A. Vincent, Three Mile Bay.	J. M. Mosher, Albany.
J. P. Creveling, Auburn.	C. H. Porter, Albany.
Earl D. Fuller, Utica.	C. F. Timmerman, Amsterdam.
E. S. Willard, Watertown.	Frank Beebe, Johnstown.
Herman Bendell, Albany.	R. H. Ward, Troy.
William Warren Potter, Buffalo.	J. M. Bigelow, Albany.
Eugene Beach, Gloversville.	Lorenzo Hale, Albany.
Osman F. Kinloch, Troy.	Henry Hun, Albany.

H. E. Mereness, Albany.	Charles D. Napier, Brooklyn.
G. M. Edebohl, New York.	Arthur B. Breese, Syracuse.
W. Gill Wylie, New York.	T. Kirk Perry, Albany.
P. R. Furbeck, Gloversville.	C. S. Merrill, Albany.
Z. Taylor Emery, Brooklyn.	L. Bolton Bangs, New York.
Charles E. Willard, Catskill.	William H. Skene, Brooklyn.
F. H. Stephenson, Syracuse.	Charles E. Doubleday, Penn Yan.
O. J. Hallenbeck, Canandaigua.	George W. Brush, Brooklyn.
Wilbur F. Lamont, Catskill.	Aaron B. Miller, Syracuse.
Herman E. Hayd, Buffalo.	Charles Stover, Amsterdam.
Crawford E. Fritts, Hudson.	Robert K. Tuthill, Poughkeepsie.
John E. Sheppard, Brooklyn.	M. G. Planck, Schenectady.
Eugene H. Howard, Rochester.	H. Beekman Delatour, Brooklyn.
W. E. Ford, Utica.	A. T. Bristow, Brooklyn.
Herman Mynter, Buffalo.	B. U. Steenberg, Albany.
A. H. Palmer, Marlborough.	Wm. Wotkyns Seymour, Troy.
George W. Rosaman, Ancram.	W. G. Macdonald, Albany.
George P. Johnson, Mexico.	A. Vander Veer, Albany.
Lewis W. Rose, Rochester.	M. A. Veeder, Lyons.
A. Walter Suiter, Herkimer.	Austin La Monte, Carmel.
G. P. K. Pomeroy, Stuyvesant.	Samuel B. Ward, Albany.
G. Graves, Herkimer.	S. R. Morrow, Albany.
L. S. Pilcher, Brooklyn.	Gilbert Birdsall, N. Brookfield.
Willy Meyer, New York.	P. M. Wise, New York.
Edwin Evans, Rome.	Alfred W. Henckell, Rochester.

MEMBERS BY INVITATION.

E. W. Wollaber, Cambria.	D. M. Taylor, Edwards.
E. C. Spitzka, New York.	Charles G. Briggs, Schenectady.
F. O. Lloyd, Hamilton.	Alex. Strong, New York.
Sargent F. Snow, Syracuse.	Edwin B. Cragin, New York.
S. A. Russell, Poughkeepsie.	H. M. Cullings, Syracuse.
George S. Evelith, Little Falls.	George Blumer, Albany.
W. G. Dobson, Poughkeepsie.	H. L. Furbeck, St. Johnsville.
R. W. Parsons, Sing Sing.	Charles W. Pilgrim, Poughkeepsie.
Edgar O. Swift, Jordanville.	Thomas E. Bamford, Poughkeepsie.
D. C. Case, Slingerlands.	T. D. Crothers, Hartford, Conn.
Edward J. Wynkoop, Syracuse.	R. H. Ash, Port Leyden.
Robert H. Morey, Old Chatham.	Albert B. Randall, Syracuse.
Daniel Connolly, Kingston.	James F. McCaw, Watertown.
James C. Graham, Philadelphia.	James E. Kelsey, Theresa.
James Burton, Cooperstown.	W. S. Graham, Troy.
Francis H. Williams, Boston, Mass.	L. R. Oatman, Gloversville.
A. W. Van Slyke, Coxsackie.	T. Floyd Woodworth, Kinderhook.
M. M. Lucid, Tully.	Melvin Sheldon, Valatie.
Charles H. Moore, Albany.	H. M. Hicks, Amsterdam.
William G. Lewi, Albany.	C. Howard Trevell, Troy.

Alex. L. Johnson, Gloversville.	C. C. Fite, New York.
L. Le Brun, Albany.	John H. Bird, New York.
L. H. Neuman, Albany.	B. T. Whitmore, New York.
E. L. Keyes, New York.	J. H. Martin, Otego.
E. Eugene Holt, Portland, Me.	L. J. Dailey, Gloversville.
J. F. Hill, Waterville, Me.	George H. Furbeck, Cohoes.
C. E. Norton, Lewiston, Me.	W. H. Heath, Buffalo.
Frank H. Koyle, Hornellsville.	T. A. Lichty, Clifton Springs.
Wickes Washburn, New York.	W. H. Sherman, Yonkers.
E. E. Harris, New York.	Julia Wygant, Syracuse.
J. A. Grant, Malone.	W. B. Warhase, New Jersey.
W. S. Shattuck, Jr., Brooklyn.	H. P. De Forest, Connecticut.
J. O. Stranahan, Poughkeepsie.	W. H. Skene, New Jersey.
John F. Reilly, Rensselaer.	William C. Krauss, Buffalo.
L. B. Rulison, Watervliet.	J. E. Walker, Hornellsville.
George W. Papen, Albany.	

PRESIDENTS OF COUNTY MEDICAL SOCIETIES.

G. H. Van Wagmen, Wappinger Falls, Dutchess County.
A. V. Jova, Newburgh, Orange County.

DELEGATES FROM STATE SOCIETIES.

Vermont State Medical Society.

F. W. Goodall, Bennington. W. H. Vincent, Orwell.

Present: Delegates, 100.
Permanent Members, 140.
Members by Invitation, 75.
Total, 315.

MINUTES OF THE PROCEEDINGS
OF THE
MEDICAL SOCIETY OF THE STATE OF NEW YORK,
AT ITS NINETY-SECOND ANNUAL SESSION,
HELD AT
ALBANY, JANUARY, 1898.

FIRST DAY.—*Morning Session.*

THE PRESIDENT, DR. SENECA D. POWELL, of New York, called the meeting to order Tuesday, January 25, 1898, at 9.30 A.M., in the Common Council Chamber, City Hall, Albany, and the exercises were opened with prayer by the Rev. Charles A. Richmond, of Albany.

The PRESIDENT then delivered his

INAUGURAL ADDRESS.

MR. VICE-PRESIDENT, MEMBERS, AND DELEGATES: It becomes my duty, as your presiding officer, to inaugurate the ninety-second annual meeting of your Society, and to report to you the condition of its affairs throughout the State. It is my pleasure to inform you that the excellent conditions which have been reported concerning its prosperity, and which have been uniformly noted by my predecessors for several years, continue at this time. We are united in our brotherhood, contented with our affiliations, honored in our government, and are enjoying the victories of peace and harmony. The only shadow which has fallen across our pathway has been the shadow of death; and it becomes my painful duty to announce the names of the members who have died during the year:

NECROLOGY. William S. Preston, permanent member, died at Patchogue, February 16, 1897, aged eighty-seven years.

Joseph E. West, permanent member, died at Utica, March 6, 1897, aged seventy years.

Thomas S. Dawes, permanent member, died at Saugerties, April 11, 1897, aged seventy-five years.

Andrew Otterson, permanent member, died at Brooklyn, April 14, 1897, aged seventy-five years.

Le Roy McLean, permanent member, died at Troy, April 23, 1897, aged sixty-six years.

B. F. Sherman, permanent member, died at Ogdensburgh, May 30, 1897, aged eighty years.

William C. Wey, permanent member, died at Elmira, July 1, 1897, aged sixty-eight years.

Charles O. Baker, permanent member, died at Auburn, July 16, 1897, aged forty-five years.

Wilbur H. Booth, permanent member, died at Utica, September 25, 1897, aged forty-five years.

Charles Willard Hamlin, permanent member, died at Middleville, October 7, 1897, aged fifty-eight years.

Charles H. Avery, permanent member, died at New York, November 2, 1897, aged sixty-three years.

Joseph Lewi, permanent member, died at Albany, December 19, 1897, aged seventy-eight years.

Most of these men are well known to you, not only by the distinction which they attained in our profession, but also by personal associations; and it is not meet that I should distinguish them by any words of comment or praise. A membership in this Society carries with it an honor and a distinction which can be gained only by years of fidelity and loyalty to the interest of the societies which they represent. Dr. Wey was your President in 1871, and Dr. Sherman in 1884. There is hardly a transaction of your Society for the last quarter of a century which does not chronicle their worth and the estimation in which they were held by you.

I have little to bring before you in the way of recommendations. The Merritt H. Cash Prize Fund should receive your attention. As it is now applied little or no benefit results to the Society. It seems to me that it could be put to some better use; and I would recommend that your committee be authorized to consider the many suggestions which have already been made to you as to its disposition.

Each year justifies the wisdom of your Society when it created your State Board of Medical Examiners. Its work as compared with that of any similar board of our sister States can be pointed to with pride as evidence of what can be accomplished in the way of controlling and licensing the practice of medicine. The number of medical licensing

examinations during the year was five; the total number of candidates, 862; the total number accepted, 627; the total number rejected, 235; the average rejections for the year, 22 per cent. The highest percentage of rejections of a similar board of any other State is about 5 per cent. This alone shows that there has been no negligence on the part of your board to elevate and maintain the high standard of medical education which you have pronounced for. The examinations, as heretofore, have been conducted under the auspices of the Regents; the number, instead of the name system, obtaining. A comparison of the work done during the academic year 1897 with that of preceding years shows conclusively that standards must have been raised in our State medical colleges, as evidenced by the examination results. The system is such that no worthy man is debarred from license to practice; and the network is being webbed finer and finer to prevent unworthy persons from being licensed to practice medicine in our State. But the report of the board will be presented *in extenso*, and it is, therefore, needless for me to dwell longer on this subject, excepting to express the opinion that in advocating State licensing as a *sine qua non* for practice in this State, the Medical Society of the State of New York can find no reason up to the present time for deviating from its original disposition in this matter.

A well-established principle of the State Medical Society, to renominate for membership to the State Board those who have served well in the past, has continued; but death has broken the circle, and Dr. Wey's position as a member of the board has been filled by the selection by the Regents of your ex-President, Dr. A. Walter Suiter. In this connection I call to your attention a well-organized plan of the enemies of this Society to interfere with the laws governing the formation of this board. A bill was introduced asking that the State Medical Association share with the State Medical Society in the naming to the Regents of candidates to fill vacancies on this board. When the well-known attitude of the association in reference to other legalized State societies holding different views as to the system of medical practice is taken into consideration, the intent of the framers of this bill cannot be misjudged.

I wish to call your attention also to what seems to me to be an urgent need of decided action on your part. I have reference to the defective law which controls the sale of poisons in this State. It is an unusual thing not to see reports of one or more deaths by poison in each issue of the daily papers; while, on the other hand, I recently noted seven cases of suicide by carbolic-acid poisoning alone in one day. The Medical Society of the State of New York is the legal representative of the medical profession of the State, and it is obligated to the

public to see that laws shall be made to protect its citizens, not only from criminal malpractices, but also from the accomplishment of the suicidal intents of those who have fallen under their heavy burdens and know not to whom to cry out for assistance and relief in their sorrows and sufferings.

I have a great deal of hesitancy in recommending any new legislation, for, as a rule, the less governed a people the better the community. When the public can once be convinced of the fact that the object of this Society is not to further the professional interests of its members, but to protect the sick and suffering, the rich or poor, not only from the charlatan and quack, but also from that ill-educated doctor who cares nothing for science and practices medicine only for the harvest which he reaps, then will they uphold the hands of this Society in the prosecution of all offenders against the medical laws of this State.

Dr. James D. Spencer, in his inaugural address last year, called your attention to the proposed formation of a society to be known as The National Association of State Medical Societies, and was authorized by you to appoint a committee of ten to represent this State at a meeting to be called at some future day. I will announce that committee as appointed by him at the proper time; and here let me say a few words in support of this contemplated action. Our societies as now administered have a twofold object, the predominant one being the advancement of the science of medicine, the other looking toward limited control of medical legislation. If it be correct, as it has been said, that charlatanism is protected by an incorrect appreciation by the public at large of the objects which influence medical men to seek the aid of the law in controlling the practice of medicine, then a crusade of education and concentrated, intelligent work, directed by representative men of the legal medical societies of the States, would of necessity result in uniform laws being passed in all the States, and eventually drive the ignorant pretenders who are preying upon the sick from their nefarious practices, and show that their miraculous cures are but lies conceived in their evil minds for the sake of adding to their ill-gotten gains.

At your last annual meeting there were three amendments to the By-laws offered; one proposed by Dr. William J. Morton as follows:

That upon the morning of the third day of the meeting, the Society shall proceed to the election of officers. The President, Vice-President, Secretary, and Treasurer shall each be chosen separately by ballot, and those having the greatest number of votes for each office shall be declared elected. The election of other nominees may, at the discretion of the Society, be by ballot or by vote, and that all portions of the By-

laws relating to the appointment, action, and duties of the Nominating Committee be rescinded.

In commenting upon this resolution I have but to call the attention of those gentlemen who were members of the Society when this method of securing its officers was tried. It resulted in confusion, wrangling, and a disturbance of all scientific and other businesses which were essentially important to the Society. I do not intend to indulge in any personalities, but the remarks which were made at the time by the gentleman who offered the resolution were, as many of you know, pertinent and to the point, and conveyed the impression that your Nominating Committee was but a hot-bed of political intrigues and disreputable practices. As he spoke from his personal experiences while serving as a member of that committee, it would be in bad taste for me to question the accuracy of his statement. I can only say that I have, fortunately, had no knowledge of the political "tricks" of which he spoke, and I think it would be ill-advised for the Society to change its methods for the election of its officers.

Another resolution to amend the By-laws was offered by Dr. O. F. Kinloch :

The annual meeting of this Society shall be held alternately in the cities of New York, Albany, and Buffalo on the first Tuesday in February in each year, and all other meetings shall be held at such time and place as may be determined by a majority of the Society convened at any legal meeting. This Society may from time to time change the day of holding its annual meeting, in accordance with the provisions of Chapter V., Laws of 1876, being an "Act to enable the Medical Society of the State of New York to alter the time of holding its annual meeting."

While a few arguments can be offered in favor of this resolution, yet it presents so many difficulties which would obviously tend to destroy some of the most valuable accomplishments of the Society, that it would, in my judgment, be wrong for your body to make any change in the place of its meeting. Sporadic and migratory societies, of whatever character, do not afford to their members that feeling of solidity and fixation which we have in our present arrangement.

I beg to call the attention of the Society to an evil custom which has grown up unconsciously, until it is likely in the future, if not corrected, to place some member at a very great disadvantage in the enjoyment of the honors which you may confer upon him. I have reference to the custom of calling upon your President to meet the deficit which results yearly from your annual dinner. I am satisfied that those who know me personally will not believe that I am influ-

enced in calling your attention to this evil by any pecuniary consideration; and I am also satisfied that now your attention having been directed to it, you will in your own good way correct it.

I thank you for the many courtesies which you have shown me and the great honor you have conferred upon me, and beg to declare the meeting open for regular business.

DR. JAMES D. SPENCER moved that the address be referred to a committee of three to report upon the recommendations contained in it; carried, and the following committee appointed: Dr. James D. Spencer, of Watertown; Dr. William Warren Potter, of Buffalo, and Dr. Herman Bendell, of Albany.

The PRESIDENT announced the following committees:

Business Committee: Dr. Willis G. Macdonald, of Albany; Dr. Ernest Wende, of Buffalo; Dr. B. Farquhar Curtis, of New York.

Committee on Credentials: Dr. Samuel Lloyd, of New York; Dr. J. M. Mosher, of Albany; Dr. G. W. McPherson, of Buffalo.

Committee on Nominating Candidates for Vacancies on the State Board of Medical Examiners: Dr. James D. Spencer, of Watertown; Dr. Henry Flood, of Elmira; Dr. Herman Bendell, of Albany; Dr. Ernest Wende, of Buffalo; Dr. John Gerin, of Auburn.

DR. REYNOLD W. WILCOX, of the Committee of Arrangements, presented Dr. W. H. Vincent, delegate from the Vermont State Medical Society; also others as members by invitation, the names of whom may be found in the list of members in attendance, all of whom were accorded the privileges of the floor.

DR. CHARLES H. PORTER made his report as Treasurer, also as Trustee of the Merritt H. Cash Prize Fund. [See reports.]

His report was accepted and referred to the following auditing committee: Dr. William Maddren, of Brooklyn; Dr. Eugene Beach, of Gloversville; Dr. E. F. Brush, of Mount Vernon. This committee subsequently reported that they found the report of the Treasurer correct, and its report was accepted.

The SECRETARY announced the receipt of an invitation from the American Electro-Therapeutic Association to this Society to be represented at its eighth annual meeting, to be held in Buffalo next September (13th-15th), by a delegate.

The invitation was, on motion, accepted, and the Committee of Nomination was instructed to name a delegate.

DR. F. C. CURTIS presented the report of the Committee of Publication, which was accepted. [See reports.]

DR. A. WALTER SUTTER presented the report of the Committee on Legislation, which was accepted. [See reports.]

DR. MAURICE J. LEWI presented the report of the State Board of Medical Examiners, which was accepted. [See reports.]

The SECRETARY presented the names of applicants for permanent membership, which, under the rules, were referred to the Committee of Nomination.

DR. H. D. WEY presented the report of the Committee on By-laws, reporting adversely upon all of the following proposed amendments offered at the last meeting :

1. Offered by Dr. William J. Morton, of New York :

Resolved, That the By-laws of the Society be amended as follows: That upon the morning of the third day of the meeting the Society shall proceed to the election of officers. The President, Vice-President, Secretary, and Treasurer shall each be chosen separately by ballot, and those having the greatest number of votes for each office shall be declared elected. The election of other nominees may, at the discretion of the Society, be by ballot or by vote, and that all portions of the By-laws relating to the appointment, action, and duties of the Nominating Committee be rescinded.

2. Offered by Dr. O. F. Kinloch, of Troy :

The annual meetings of this Society shall be held alternately in the cities of New York, Albany, and Buffalo on the first Tuesday in February in each year, and all other meetings shall be held at such time and place as may be determined by a majority of the Society convened at any legal meeting. This Society may from time to time change the day of holding its annual meeting, in accordance with the provisions of Chapter V., Laws of 1876, being an act "To enable the Medical Society of the State of New York to alter the time of holding its annual meeting."

3. Dr. Herman Bendell, of Albany, gave notice of an amendment to the By-laws that members serving on the Nominating Committee shall not report their own names for office.

The report was accepted.

DR. HERMAN BENDELL moved that the third proposed amendment, offered by himself, be adopted. The motion, after discussion by Drs. Bendell, Emil Mayer, John Gerin, Edward B. Angell, Eugene Beach, and W. S. Ely, was lost by a vote of 33 in favor and 40 against it.

DR. EMIL MAYER, of New York, moved the adoption of the second proposed amendment, to change the place of holding the annual meeting. The subject was discussed by Drs. Wendell C. Phillips, Lucien Howe, W. B. Jones, Herman Bendell, O. F. Kinloch, P. R. Furbeck, F. R. Sturgis, M. J. Lewi, and Emil Mayer. The motion was lost by a vote of 36 in favor and 58 against it.

DR. WILLIAM BROWNING, of Brooklyn, presented the following report :

The Special Committee on "Rearranging the Districts of the State for the Election of the Members of the Committee of Nomination," appointed at the meeting of this Society last year, begs to report as follows:

The matter referred to them has been duly considered and a general agreement reached. The fact that this committee is made up of one member from each of the present districts should be something of a guarantee of fair and careful action on its part.

The plan under which we are now working is one that dates back to 1836, and rests on a political division long since discarded. The distribution of population in the State, and, consequently, the numerical relationship of delegates to this body, has changed greatly in this period of sixty years. The increasing lack of representativeness of the Nominating Committee has doubtless been noticed by many of the members, and the fact that no change has been made only illustrates the ultra-conservatism of the Society. But the time has certainly come for some correction of this condition.

In looking about for a way to accomplish this, and yet not alter the character of the Nominating Committee, one of the members discovered a basis that we can safely adopt. It offers no radical change; it does not alter the number of members of the Nominating Committee, and yet it does permit us to come somewhat more into line with the present conditions. This is the adoption of the present Judicial Districts, eight in number, in the place of the obsolete Senatorial Districts of like number. The chief changes involved in this plan "are the division of the First and Eighth Districts, which is surely equitable. The present First District contains fifty-seven delegates, and the proposed one will have thirty-five; the Second thirty-six. The Eighth has advantages in separating by the proposed plan the large cities of Buffalo and Rochester. All the districts are more compact and their associations are more natural."

A map of this proposed division accompanies this report, and parallel lists of both the old and the new by counties and delegates are shown as follows:

Districts, with their Delegates by Counties.

Present ((Senatorial).	Proposed (Judicial).
1. Kings, 21; New York, 35; Richmond, 1.	1. New York, 35.
2. Dutchess, 2; Queens, 8; Sullivan, 1; Orange, 2; Rockland, 1; Ulster, 2; Putnam, 1; Suffolk, 2; Westchester, 8.	2. Richmond, 1; Suffolk, 2; Queens, 8; Kings, 21; Westchester, 8; Orange, 2; Rockland, 1; Putnam, 1; Dutchess, 2.
3. Albany, 4; Greene, 1; Schenectady, 1; Columbia, 1; Rensselaer, 8; Schoharie, 1; Delaware, 1.	3. Columbia, 1; Sullivan, 1; Ulster, 2; Green, 1; Albany, 4; Schoharie, 1; Rensselaer, 8.
4. Clinton, 1; Herkimer, 1; Saratoga, 1; Essex, 1; Montgomery, 1; Warren, 1; Franklin, 1; St. Lawrence, 2; Washington, 1; Fulton and Hamilton, 1.	4. Warren, 1; Saratoga, 1; Washington, 1; Essex, 1; Franklin, 1; St. Lawrence, 2; Clinton, 1; Montgomery, 1; Hamilton and Fulton, 1; Schenectady, 1.

Present (Senatorial).

5. Jefferson, 2; Madison, 1; Oswego, 2; Lewis, 1; Oneida, 3; Otsego, 1.
6. Allegany, 1; Chenango, 1; Steuben, 2; Broome, 2; Livingston, 1; Tioga, 1; Cattaraugus, 2; Schuyler, 1; Tompkins, 1; Chemung, 1.
7. Cayuga, 2; Ontario, 1; Wayne, 1; Cortland, 1; Seneca, 1; Yates, 1; Onondaga, 4.
8. Chautauqua, 2; Monroe, 4; Orleans, 1; Erie, 8; Niagara, 2; Wyoming, 1; Genesee, 1.

Proposed (Judicial).

5. Onondaga, 4; Oneida, 3; Oswego, 2; Herkimer, 1; Jefferson, 2; Lewis, 1.
6. Otsego, 1; Delaware, 1; Madison, 1; Chenango, 1; Broome, 2; Tioga, 1; Chemung, 1; Tompkins, 1; Cortland, 1; Schuyler, 1.
7. Monroe, 4; Livingston, 1; Wayne, 1; Seneca, 1; Yates, 1; Ontario, 1; Steuben, 2; Cayuga, 2.
8. Erie, 8; Chautauqua, 2; Cattaraugus, 2; Orleans, 1; Niagara, 2; Genesee, 1; Allegany, 1; Wyoming, 1.

We therefore unanimously recommend as the basis for representation on the Committee of Nomination the adoption of the Judicial Districts of the State as given in the *Legislative Annual* of 1897, in the place of the so-called Senatorial Districts.

Such action on the part of this Society cannot, of course, affect our modus this year, but would be in effect at our next annual session.

Respectfully submitted,

WILLIAM BROWNING, First District.
 GEORGE HUNTINGTON, Second District.
 FREDERIC C. CURTIS, Third District.
 CHARLES M. LEFLER, Fourth District.
 J. H. GLASS, Fifth District.
 DANIEL S. BURR, Sixth District.
 J. P. CREVELING, Seventh District.
 ERNEST WENDE, Eighth District.

On motion, the report was received and the recommendations adopted without dissent.

The Business Committee then took up the program of the meeting.

A paper by Dr. Walter F. Chappell, of New York, "Throat and Nose Affections and their Relations to General Medicine," was read by title.

DR. WENDELL C. PHILLIPS, of New York, read a paper, "Ear Manifestations in General Disease."

Discussion by Dr. E. Eugene Holt, of Portland, Me., and Dr. Lucien Howe, of Buffalo.

DR. JOHN O. ROE, of Rochester, read a paper, "Cases of Acute Non-diphtheritic Inflammation of the Larynx, Requiring the Prolonged Retention of the Intubation Tube."

Discussion by Dr. J. P. Creveling, of Auburn.

DR. T. F. C. VAN ALLEN, of Albany, read a paper, "The Report of a Case of Unusual Contraction of the Visual Field and Disorder of the Color Sense following an Injury."

DR. C. B. HERRICK, of Troy, read a paper, "The Railway Surgeon and His Work."

Discussion by Dr. J. P. Creveling and the author.

DR. REYNOLD W. WILCOX, of New York, read a paper, "The Rivals of the Physician in Practice."

FIRST DAY.—*Afternoon Session.*

The Society was called to order by the President, and the Committee of Nomination announced as follows:

Appointed by the President.—Dr. A. Vander Veer, of Albany.

First District.—Dr. J. M. Winfield, of Brooklyn.

Second District.—Dr. L. N. Lanehart, of Hempstead.

Third District.—Dr. O. D. Ball, of Albany.

Fourth District.—Dr. Eugene Beach, of Gloversville.

Fifth District.—Dr. A. J. Browne, of Utica.

Sixth District.—Dr. W. E. Colegrove, of Horseheads.

Seventh District.—Dr. M. P. Conway, of Auburn.

Eighth District.—Dr. E. B. Angell, of Rochester.

DR. JOHN H. PRYOR, of Buffalo, read a paper, "What Shall the State and County do for the Consumptive?"

On motion, the subject-matter of the paper was referred to the Committee on Hygiene.

DR. WILLIAM WARREN POTTER, of Buffalo, read a paper, "The Advantages of State Control in Medicine, with Results Observed."

Discussion by Dr. R. C. M. Page, of New York, and Dr. W. S. Ely, of Rochester.

DR. J. B. RANSOM, of Dannemora, read a paper, "Expert Medical Testimony."

Discussion opened by Dr. Evarts M. Morrell, of New York; Dr. A. Walter Suiter, of Herkimer; and Dr. Charles S. Allen, of Rensselaer; and continued by Dr. Landon Carter Gray, of New York; Dr. E. D. Fisher, of New York, and Dr. E. B. Angell, of Rochester.

DR. RANSOM moved that a special committee of five be appointed to confer with other bodies on the subject of medical expert testimony, and authorized to shape a measure representing the views of this Society on this subject, for introduction to the Legislature.

The motion was ruled out of order at this time, but subsequently, in an executive session, was adopted, and the following committee appointed: Drs. J. B. Ransom, of Dannemora; Dr. A. Walter Suiter,

of Herkimer; Dr. Carlos F. MacDonald, of New York; Dr. W. G. Macdonald, of Albany, and Dr. P. M. Wise, of New York.

DR. B. C. LOVELAND, of Clifton Springs, read a paper, "A Contribution to the Study of Melancholia, with a Report of the Examination of the Blood in Fifty-seven Cases."

Discussion by Dr. S. A. Russell, of Poughkeepsie; Drs. L. Duncan Bulkley and E. D. Fisher, of New York, and the author.

DR. JOHN T. WHEELER, of Chatham, read a paper, "The Cold-water Treatment of Typhoid Fever in Private Practice."

Discussion by Dr. S. A. Russell, of Poughkeepsie.

DR. R. C. M. PAGE, of New York, read a paper, "Anæmia."

DR. HENRY L. ELSNER, of Syracuse, read a paper, "On the Vagaries and Wanderings of Gall-stones, with Clinical Reports."

Discussion by Dr. B. C. Loveland, of Clifton Springs; Dr. F. W. Sears, of Syracuse, and Dr. W. G. Macdonald, of Albany.

DR. E. D. FISHER, of New York, read a paper, "Paralysis, its Form, Prognosis, and Treatment."

Discussion by Dr. E. B. Angell, of Rochester; Dr. William C. Krauss, of Buffalo, and the author.

DR. HERBERT M. WILLIAMS, of Buffalo, read a paper, "The Relation of Bacteria to the Normal Alimentary Canal."

FIRST DAY.—*Evening Session.*

The Society was called to order by the Vice-President, Dr. Lucien Howe.

The session was devoted to an exhibition of x-ray apparatus by means of an electric wire brought in and complete apparatus for demonstration, together with lantern and stereopticon demonstration.

DR. SAMUEL LLOYD, of New York, presented, first, the "Technique and Apparatus."

DR. FRANCIS H. WILLIAMS, of Boston, Mass., gave a demonstration of "The X-ray in Medicine."

DR. ARTHUR L. FISK, of New York, presented the subject of "The X-ray in Surgery," chiefly by means of lantern-slides.

DR. WILLIAM HAILES, of Albany, exhibited "The X-ray, Clinical Experiences; also Improved Methods in Microscopic Projection, Illustrated," showing by the stereopticon, first, surgical illustrations, and afterward a large number of microscopic sections thrown on the screen by a projection lantern.

A vote of thanks was extended to the gentlemen who had participated in the exhibition.

SECOND DAY.—*Morning Session.*

The Society was called to order at 9.45 o'clock by the President.

The SECRETARY presented the report of the Committee of Nomination upon the applicants for permanent membership, referred to it under the rules, recommending that their application be granted to the following:

Drs. H. A. Barney, Belmont; Gilbert Birdsall, North Brookfield; Arthur B. Breese, Syracuse; A. T. Bristow, Brooklyn; George H. Brush, Brooklyn; William E. Butler, Brooklyn; M. A. Crockett, Buffalo; Charles E. Doubleday, Penn Yan; J. T. Duryea, Brooklyn; Edwin Evans, Rome; Henry A. Fairbairn, Brooklyn; Thomas H. Halsted, Syracuse; Hickson F. Hart, Shrub Oak; Alfred W. Henckell, Rochester; D. W. Houston, Troy; William C. Krauss, Buffalo; Wilbur F. Lamont, Catskill; David F. Lucas, Brooklyn; Henry C. McLean, Brooklyn; William B. Melick, Fort Edward; A. Clifford Mercer, Syracuse; Evarts Monroe Morrell, New York; Robert J. Morrison, Brooklyn; David Myerle, Brooklyn; Herman V. Mynderse, Schenectady; Henry H. Morton, Brooklyn; Charles D. Napier, Brooklyn; B. E. Radeker, Deposit; Lewis W. Rose, Rochester; George W. Rossman, Ancram; John E. Sheppard, Brooklyn; William H. Skeene, Brooklyn; Alexander A. Stern, Rondout; John Warren Thorp, Oxford; M. A. Veeder, Lyons; Charles G. Wagner, Binghamton; George C. Weiss, Mount Vernon; Alfred G. Wilding, Malone; Edward S. Willard, Watertown; Ezra H. Wilson, Brooklyn.

On motion, the report was accepted and the applicants were duly elected permanent members on further compliance with the By-laws.

DR. E. F. BRUSH, of Mount Vernon, read a paper, "The Hygienic Management of Dairies."

DR. W. H. HEATH, of Buffalo, read a paper, "The Municipal Control of Milk-supply in Cities and Villages, with Report of Health Regulation."

DR. R. J. WILDING, of Malone, read a paper, "The Treatment of Stricture of the Urethra by Continuous Elastic Dilatation."

DR. HERMAN E. HAYD, of Buffalo, read a paper, "Some Points in the Technique of the Alexander Operation."

DR. EDWIN B. CRAGIN, of New York, read a paper, "The Present Status of Vaginal Operations for Diseases of the Pelvic Organs."

DR. WILLIS E. FORD, of Utica, read a paper, "Remote Consequences of Excessive Uterine Hemorrhage."

DR. J. RIDDLE GOFFE, of New York, read a paper, "The Anatomy and Function of the Pelvic Floor in Women and the Operation for Repair of Injuries due to Parturition."

Discussion of the last four papers by Dr. George M. Edebohls, of New York; Dr. W. Gill Wylie, of New York; Dr. A. Vander Veer, of Albany; Dr. F. W. Sears, of Syracuse, and the authors of the papers.

DR. GEORGE M. EDEBOHLS, of New York, read a paper, "Investigation and Exploration of the Other Kidney in Contemplated Nephrectomy."

Discussion by Dr. A. T. Bristow, of Brooklyn; Dr. Willy Meyer, of New York, and the author.

DR. P. M. WISE, of Albany, read a paper, "The Past, Present, and Prospective Methods of Treatment of Insanity in the State of New York."

Discussion by Dr. Landon Carter Gray, of New York, and the author.

SECOND DAY.—*Afternoon Session.*

The Society was called to order by the Vice-President at 2.30 o'clock.

DR. EDWARD D. FISHER, chairman of the Committee on Prize Essays, reported that no prize had been awarded by the committee.

The report was accepted.

DR. ELI H. LONG, of Buffalo, presented the report of the special committee appointed at the last meeting of the Society on the *U. S. Pharmacopœia*, as follows:

To the Medical Society of the State of New York:

As a point of departure in the work of your committee, it has been assumed that the *U. S. Pharmacopœia* is worthy of the appreciation of the profession, representing as it does so much of accurate, disinterested work, and furnishing the basis and standard for all text-books on materia medica and pharmacy. As a preliminary step we have sought to ascertain what estimate is placed upon the book by the profession. This has been done by addressing to teachers of materia medica, and therapeutics particularly, the following four questions:

1. Do you find the *U. S. Pharmacopœia* meeting the demands as a standard for drugs and preparations?
2. Is it abreast of the present advances in medical and pharmacal science?
3. What, in your opinion, stands in the way of its more general use by practising physicians?
4. What can you suggest in a general way in the line of improvements in the *U. S. Pharmacopœia* at its next revision?

Fifty-five responses have been received which, we believe, represent well the thought of the profession regarding the book. That there is a deplorable lack of familiarity with it is shown by the fact that even a few teachers of materia medica confound the *Pharmacopœia* with the *Dispensatories*.

Many suggestions as to improvement have been offered, some valuable,

some impracticable. Taking the book as it stands to-day, undoubtedly superior to the pharmacopœia of any other country, your committee believe that improvements are possible chiefly in the way of enlarging its scope sufficiently to make it a work of greater practical value to the physician.

To this end we recommend, for the next year, that discussion be stimulated in the direction of the following propositions:

1. That all drugs and preparations not now prescribed to any extent by physicians be dismissed, and that all chemical drugs necessary to other preparations, but which are not prescribed directly, be placed in a list apart from the body of the work.

2. That doses be included in the next revision, but that they be placed in the index rather than in the text of the book, in order to readier reference and to avoid making them official.

3. That a section be devoted to giving reliable information concerning new remedies, without making them in any sense official, and that an annual supplement be issued for the purpose of continuing the same kind of information.

We recommend that the plan be continued of inviting opinions from teachers of pharmacology upon matters under discussion.

The question of making the newer synthetic drugs official involves too much in the way of consideration of patents and copyrights to be finally reported upon at this time. Its importance, however, demands its thorough discussion by the medical profession during the next two years, so as to determine its proper solution, if possible, before the meeting of the Pharmacopœial Convention in 1900.

ELI H. LONG,
REYNOLD W. WILCOX,
HOWARD VAN RENSSELAER.

On motion of Dr. E. B. Angell, the report was received and the committee continued in office.

DR. J. E. WALKER, of Hornellsville, read a paper, "Actinomycosis, with Report of Cases."

Discussion by Dr. A. M. Phelps, of New York.

DR. HERMAN MYNTER, of Buffalo, read a paper, "A Year's Work in Appendicitis."

DR. WILLIAM B. JONES, of Rochester, read a paper, "Lessons from Six Cases of Appendicitis."

Discussion of the two papers by Dr. Willy Meyer, of New York, and the authors.

DR. A. M. PHELPS, of New York, read a paper, "Congenital Dislocation of the Shoulder Backward, with a Report of Seven Cases, and an Operation for its Relief."

Discussion by Dr. W. H. Vincent, of Orwell, Vt., and the author.

DR. REGINALD H. SAYRE, of New York, read a paper, "The Treatment of Rhachitic Deformities."

Discussion by Dr. A. M. Phelps and the author.

A discussion on "The Management of Hypertrophy of the Prostate Gland and its Complications," followed.

DR. L. BOLTON BANGS, of New York, read a paper, "General Considerations and Catheter Life."

DR. SAMUEL ALEXANDER, of New York, read a paper, "Prostatectomy and Prostatotomy, Supra-pubic and Perineal."

DR. WILLY MEYER, of New York, read a paper, "Bottini's Galvano-caustic Radical Treatment, and the Palliative Treatment for Hypertrophy of the Prostate."

DR. L. S. PILCHER, of Brooklyn, read a paper, "Castration for the Relief of Hypertrophied Prostate."

DR. E. L. KEYES, of New York, read a paper, "Stone, Associated with Hypertrophy of the Prostate."

Discussion by Dr. Herman Mynter, of Buffalo, and Dr. L. S. Pilcher.

DR. SAMUEL LLOYD, of New York, read a paper, "Excision of the Fibula for Sarcoma."

DR. THEODORE DUNHAM, of New York, read a paper, "The Treatment of the Fracture of the Femur in Children."

SECOND DAY.—*Evening Session.*

The Society was called to order in the Senate Chamber of the Capitol, at 8.30 o'clock, by the Vice-President, Dr. Lucien Howe.

The PRESIDENT, Dr. Seneca D. Powell, of New York, delivered the Anniversary Address, on the topic, "The Obligations of the Physician and the Layman to each other."

DR. A. VANDER VEER moved a vote of thanks to the President for his address.

Carried unanimously.

A reception given by the President, at the Albany Club, followed at 9.30.

THIRD DAY.—*Final Session.*

The VICE-PRESIDENT called the meeting to order at 9.45 o'clock.

DR. EUGENE BEACH presented the

REPORT OF THE COMMITTEE OF NOMINATION.

To the Medical Society of the State of New York:

GENTLEMEN: Your Committee of Nomination would respectfully report the names of the following gentlemen and recommend their election to office:

For President.—John O. Roe, Rochester.

For Vice-President.—E. F. Brush, Mount Vernon.

For Secretary.—F. C. Curtis, Albany.

For Treasurer.—C. H. Porter, Albany.

For Committee of Arrangements: Samuel B. Ward, Albany; William J. Nellis, Albany; Reynold W. Wilcox, New York.

For Committee on By-laws: H. D. Wey, Elmira; Nathan Jacobson, Syracuse; F. C. Curtis, Albany.

For Committee on Prize Essays: J. M. Van Cott, Brooklyn; Andrew Macfarlane, Albany; William S. Cheeseman, Auburn.

For Committee on Hygiene: Henry H. Hopkins, Buffalo; E. H. Bartley, Brooklyn; C. E. Bruce, New York; J. M. Mosher, Albany; O. W. Peck, Oneonta; H. F. Hart, Shrub Oak; George Seymour, Utica.

For Committee on Legislation: Frank Van Fleet, New York; Arthur G. Root, Albany; Ernest Wende, Buffalo.

For Committee on Ethics: Evarts M. Morrell, City Island; George McNaughton, Brooklyn; Louis A. Weigel, Rochester.

For Committee on Publication: F. C. Curtis, Albany; Daniel Lewis, New York; William Warren Potter, Buffalo; Charles H. Porter, Albany.

For Honorary Member: Joseph M. Matthews, Louisville, Ky.

For Eligibility to Honorary Membership: W. W. Keene, of Philadelphia, Pa.; Morris H. Richardson, of Boston, Mass.

For Delegates to State and Other Societies:

To the Ontario Medical Association: William B. Jones, Rochester.

To the Canadian Medical Association: John Gerin, Auburn.

To the American Electro-Therapeutic Association: Lucien Howe, Buffalo.

To the Massachusetts Medical Society: A. R. Simmons, Utica; A. M. Phelps, New York; Henry Hun, Albany.

To the Connecticut Medical Society: Edward D. Fisher, New York; John T. Wheeler, Chatham; Sands C. Maxson, Utica.

To the Vermont State Medical Society: James D. Featherstonhaugh, Cohoes; Cyrus A. Merrill, Albany.

To the New Hampshire State Medical Society: Daniel H. Cook, Albany; B. U. Steenberg, Albany.

To the Medical Society of New Jersey: F. H. Peck, Utica; Walter B. Chase, Brooklyn; C. S. Parkhill, Hornellsville; Herman Bendell, Albany; F. L. Classen, Albany.

To the Mississippi Valley Medical Association: William Warren Potter, Buffalo; E. S. Forman, Auburn.

To the Medical Society of Virginia: J. M. Mosher, Albany; A. M. Phelps, New York.

To the British Medical Association: George Seymour, Utica; Dillon Brown, New York; Charles E. Davis, Albany; William Hailes, Albany.

To the Florida Medical Association: Edward N. Liell, New York.

Resolved, That the Secretary of the Society be authorized to issue certificates as delegates to State or other Societies to those applying for them.

All of which is very respectfully submitted,

A. VANDER VEER,
Chairman.
W. E. COLEGROVE,
Secretary.

The report was accepted, and those placed in nomination were duly elected.

DR. JAMES D. SPENCER presented the report of the Committee on Nominating to the Board of Regents candidates for vacancies in the State Board of Medical Examiners representing this Society, recommending the following as such candidates: Eugene Beach, Gloversville; Joseph P. Creveling, Auburn; H. D. Wey, Elmira; Daniel Lewis, New York.

On motion, the report was accepted and the recommendation adopted.

DR. JAMES D. SPENCER presented the report of the Committee on the President's inaugural address:

To the Medical Society of the State of New York:

The committee appointed to consider the recommendations in the President's inaugural address, respectfully report as follows:

Regarding the Merritt H. Cash Prize Fund, inasmuch as it was left for a specific purpose, we advise no change.¹

Regarding the sale of poisons, while we recognize a laxity in the sale of poisons, and that something more might be done to enforce existing laws, we deem it inexpedient at this time to introduce further legislation.

Regarding the proposed National Association of State Medical Societies, we advise that the committee of ten be continued and empowered to call a meeting, as contemplated, in Washington, and take any further action they may deem necessary for the organization of this society.

Regarding the custom of the President making up the deficit of the annual banquet, any reasonable deficit arising from the holding of the annual banquet under the management of the Committee of Arrangements shall be paid by the Treasurer of the Society upon presentation of proper vouchers, approved by the Committee of Arrangements.

Respectfully submitted,

JAMES D. SPENCER,
WILLIAM WARREN POTTER,
HERMAN BENDELL,

Committee.

Adopted.

DR. JAMES D. SPENCER said that, inasmuch as the Special Committee on Medical Expert Testimony, of which Dr. J. B. Ransom was chairman, was one having important work, and the members of it live at a considerable distance from one another, he moved that the actual

¹ At the meeting of the Society in 1863 it was announced by Dr. James H. Armsby that he had received from the estate of Dr. M. H. Cash, of Ridgebury, Orange County, a legacy of \$500, which, according to the provisions of the will, was paid to him "in trust, until appropriated or expended by the Society." A committee was appointed to determine what use to make of it, which reported in favor of devoting the annual interest of this money to a prize essay fund. It would appear that the bequest was not accompanied by specification from the donor as to the use to which it should be put.—SECRETARY.

expenses of the committee be paid out of the treasury of the Society. Carried.

DR. LUCIEN HOWE, of Buffalo, presented the following resolutions, and moved their adoption :

WHEREAS, Purulent ophthalmia influences and produces more blindness than any other disease, thus bringing affliction to several hundred in this State, with large annual cost for their support; and

WHEREAS, Experience in public institutions has shown that the use of a 2 per cent. solution of nitrate of silver immediately after birth not only lessens greatly the number of those afflicted with this disease, but is a most efficient remedy; and

WHEREAS, Those supported by the State, and, therefore, wards of the State, are born in almshouses, or other public institutions, it becomes the right and duty of the State to obtain the best treatment thus far known; therefore be it

Resolved, That this Society expresses its approval of any legislation which favors the use of a 2 per cent. solution of silver nitrate in the eyes of children born in public institutions, whose mothers at the time of confinement are supported in part, or altogether, by any city or town of the State;

Resolved, That this Society instruct its Committee on Legislation to do everything in its power to obtain the enactment of some such beneficent law.

DR. HOWE stated that the number of blind in this State is about 4380. In the public institutions purulent ophthalmia produces 20 per cent. of all the blindness, and in the entire State 10 per cent., only a small part of those affected with which can support themselves, and it is estimated that their cost to the State is considerably over \$100,000 a year. With children born in public institutions, the mothers being public wards, it seems proper that the State as their guardian should insist that the best known treatment should be employed. It is known that without special prophylactic treatment the percentage is 9.2 per cent., while with the silver treatment it is only 0.65 per cent. The principle involved is the same as compulsory vaccination. The resolution does not commit the Society to any special form of law.

DR. WILLIS G. MACDONALD objected that, while admitting the conditions, the question involved a principle which the Society should not accept, in dictating a particular form of treatment to be followed by physicians under special conditions. The influence of such a resolution might react very disastrously against a physician brought into a court of law in a case of alleged malpractice. The expediency of this method is not one upon which ophthalmologists are agreed. The Society has no right to pass a resolution for legislation which violates the personal liberty of any patient. He moved that the resolution be laid on the table, and the motion was carried.

DR. DANIEL B. HARDENBURGH, of Port Jervis, offered the following:

Resolved, That it be recommended by the Medical Society of the State of New York that the laws of the State in regard to the settlement of estates should be so amended as to include among the preferred claims the claims of attending physicians during the last illness of the deceased.

He said there could be no question of the equity of such a law, and the equal propriety of bills for the services of the medical attendant being preferred as well as those of others.

DR. A. WALTER SUITER said that, as a member of the Committee on Legislation for several years, he could state that such a bill had been twice presented to the Legislature. He was in sympathy with the purpose of the resolution, but the lawyers denounce it as unconstitutional, holding that while an undertaker's bill is contracted by the executor after the decease, that of the physician for professional services is contracted by the decedent before his death; hence, if medical attendance is to be paid for as a preferred claim, bills of tradespeople should be treated in the same manner. It seems unnecessary to commit the Society to the equity of this question again, and he moved that the resolution be laid on the table. Carried.

DR. A. VANDER VEER said: We have had emanating from Albany, from one of our earnest, ingenious physicians, Dr. George E. Gorham, an "invalid bed," which we have found of practical utility in the management and care of medical and surgical cases. During the past five years I have given careful consideration to the subject of aseptic operating-tables. Dr. Macdonald and myself have succeeded in constructing one or two which we regarded as containing desirable features and have studied others, but the elements of weight and complicated machinery have made it difficult to keep many of them in a proper aseptic condition. The possibility of constructing a table combining lightness and efficiency with a moderate expense, has claimed our attention, and at different times I have had conversations with Dr. Gorham, who has, after considerable study of the matter, presented an operating-table which I believe overcomes most of the objections found in other tables. I, therefore, believe we have at last the most practical and useful operating-table yet constructed. Without taking time to describe it fully, I note that the table is made of steel bicycle-tubing and covered with sheet-steel; the joints are brazed, leaving no crevices, as in ordinary connections, and the finish is fine bicycle enamel. The gear by which the Trendelenburg position is given is a simple screw, which cannot get out of order, and which any nurse or assistant can easily work, tipping the patient slowly—thereby not dis-

turbing the heart's action—into any desired incline. The weight is about one-half that of similar tables, and it can be folded into a convenient package for transportation in two minutes, and as quickly set up again. The table is therefore not only a solid and substantial one for hospital work, but can be readily packed and moved when it is desired to operate upon a patient at his home.

DR. T. D. CROTHERS, of Hartford, Conn., read a paper, "Treatment of Delirium Tremens."

DR. H. S. DRAYTON, of New York, read a paper, "Intra-tracheal Injections for Diseases of the Bronchial Tubes and Lungs."

A note from Dr. L. Duncan Bulkley, expressing his regret at being obliged to leave Albany before the end of the session, and asking that his paper be read by title, was presented by the Secretary.

The Business Committee, through the chairman, Dr. Willis G. Macdonald, recommended that the following papers be read by title and referred to the Committee of Publication: "Observations on Brain Anatomy and Brain Tumors," by Dr. William C. Krauss, of Buffalo; "Gauze Drainage in Laparotomy," by Dr. Henry C. Coe, of New York; "The Management of Undescended Testicle in Hernia Operations," by Dr. William B. De Garmo, of New York; "The Relations of the Physician to the Practice of Midwifery," by Dr. C. F. Timmerman, of Amsterdam; "Report of a Case of Osteotomy of both Tibiæ and Fibulæ for Symmetrical Antero-posterior Angular Deformity," by Dr. F. H. Peck, of Utica; "Conservative Surgery of the Fibroid Uterus," by Dr. A. H. Goelet, of New York; and "Treatment of Deficient Excretion from Kidneys not Organically Diseased, and Some of the Diseases Peculiar to Women, and Diseases of the Skin," by Dr. L. Duncan Bulkley, of New York. It was so ordered.

The VICE-PRESIDENT said: I think we have all been struck with the unanimity of the report of the Committee on Nomination, and especially in presenting the name for President of one who has well merited the honor by long and excellent service in the Society. Before leaving I wish to resign the chair to Dr. John O. Roe, of Rochester.

DR. JOHN O. ROE, the newly elected President, on being introduced, said:

GENTLEMEN OF THE SOCIETY: It has been my privilege since I was first sent as a delegate from Monroe County, nearly twenty years ago, to attend annually the meetings of this Society. The profit that I have received therefrom has been great, and I only wish that I might return a small dividend therefrom to the general stock of medical knowledge. Extended remarks at this time are unnecessary, but let me say that it shall be my endeavor to show my appreciation of this preferment and to promote the interests of the Society. With your

kind assistance, I hope to make the next meeting of this Society as interesting and profitable as the meetings which have passed into history. I wish to thank you most cordially for this distinguished preferment, and to wish you all a new year of health, prosperity, and happiness.

DR. F. C. CURTIS said: I am sure all of us have felt that the meeting has been, as the President well stated, one of very great importance, and that we all feel that this is largely due to the assiduous attention and care given during the year by the President who retires. We also feel indebted to him for his conduct of the meeting, and for the entertainment which he has furnished to us, especially last evening. Therefore, Mr. President, I move a vote of thanks to the retiring President, Dr. Seneca D. Powell, and also to his Business Committee, which has labored assiduously with him.

Seconded by Dr. J. D. Spencer, and carried unanimously.

DR. WILLIS G. MACDONALD: I move that the thanks of this Society be tendered to the properly constituted authorities for the use of this chamber and attendance, and also for the use of the Senate Chamber of the State of New York.

Seconded by Dr. Spencer, and carried unanimously.

On motion, the Society then adjourned.

FREDERIC C. CURTIS,
Secretary.

The next meeting of the Society is to be held at Albany, N. Y., on January 31, February 1, 2, 1899.

REPORTS.

1. TREASURER'S REPORT.

The Medical Society of the State of New York, in account with the Treasurer.

General Fund.

Balance in Treasury as shown by		Amount brought forward		\$3393 32
Treasurer's report, Jan. 26, '97		Schenectady 1897 . . .		5 00
Received from County Societies,		Seneca " . . .		5 00
Institutions, and individuals,		Steuben " . . .		10 00
as follows:		Suffolk " . . .		10 00
Albany 1897 . . .	20 00	Tioga " . . .		5 00
Allegany " . . .	5 00	Tomkins 1896 and 1897 . . .		10 00
Broome " . . .	10 00	Ulster 1897 and 1898 . . .		20 00
Cattaraugus " . . .	10 00	Washington 1895, '96, and '97		15 00
Cayuga " . . .	10 00	Wayne 1897 . . .		5 00
Chautauqua 1898 . . .	10 00	Yates " . . .		5 00
Chemung 1897 . . .	5 00	Bellevue Hospital Medical Col-		
Clinton " . . .	5 00	lege, 1897 . . .		5 00
Columbia " . . .	5 00	New York Post-Graduate School,		
Cortland " . . .	5 00	1897 . . .		5 00
Dutchess " . . .	10 00	Long Island College Hospital,		
Erie " . . .	40 00	1897 . . .		5 00
Essex " . . .	5 00	Medical Department Union Uni-		
Franklin " . . .	5 00	versity, 1897 . . .		5 00
Fulton " . . .	5 00	College of Medicine, Syracuse		
Greene " . . .	5 00	University, 1897 . . .		5 00
Herkimer " . . .	5 00	Rochester Pathological Society,		
Jefferson " . . .	10 00	1897 . . .		5 00
Kings 1898 . . .	105 00	Medical Association, Northern		
Livingston 1896 and 1897 . . .	10 00	New York, 1897 . . .		5 00
Madison 1897 . . .	5 00	Utica Medical Library Associa-		
Monroe " . . .	20 00	tion, 1897 . . .		5 00
Montgomery " . . .	5 00	Elmira Academy of Medicine,		
New York 1898 . . .	175 00	1897 . . .		5 00
Oneida 1897 . . .	15 00	Utica Medical Club, 1897 . . .		5 00
Onondaga 1898 . . .	20 00	Society of Physicians, Village of		
Ontario 1897 . . .	5 00	Canandaigua, 1897 . . .		5 00
Orange " . . .	10 00	Syracuse Academy of Medicine,		
Orleans 1896 and 1897 . . .	10 00	1897 . . .		5 00
Putnam 1896 . . .	5 00	Long Island Medical Society,		
Queens 1898 . . .	15 00	1897 . . .		5 00
Rensselaer 1897 . . .	15 00	Medical Association City of Mt.		
Richmond 1897 and 1898 . . .	10 00	Vernon and Environs, 1897 . . .		5 00
St. Lawrence 1897 and 1898 . . .	20 00			
Amount carried forward		Amount carried forward		\$3553 32
\$3393 32				

TREASURER'S REPORT.

33

Amount brought forward \$3553 32	Amount brought forward \$3683 32
Initiation fee as Permanent Mem- bers from Drs. J. O. Polak, W. D. Garlock, W. O. Still- man, J. D. Craig, F. H. Parker, C. P. Biggs, C. W. Townsend, Lorenzo Hale, C. M. Brasted, M. D. Mann, Frank Baldwin, J. H. Pryor, A. P. Dudley, F. W. Slocum, O. J. Hallenbeck, F. W. Sears, J. D. Bryant, Henry P. Frost, Eugene Baker, Elton N. Carpenter, F. A. Jewett, Mrs. Marion Craig Potter, H. E. Mereness, George Hunting- ton, A. Clifford Mercer, and E. H. Grandin (26) 130 00	Received from Permanent Mem- bers for annual dues: 1 for 1894 5 00 9 " 1895 45 00 26 " 1896 130 00 234 " 1897 1170 00 3 " 1898 15 00 1365 00 Interest accrued on deposit in Albany Savings Bank 100 31
Amount carried forward \$3683 32	Total \$5148 63

Publication Fund.

1 volume, 1892	\$0 50
1 " 1896	1 50
325 " 1897	408 25
Total receipts, Publication Fund	<u>\$410 25</u>
Total receipts, General Fund	\$5148 63
" " Publication Fund	<u>410 25</u>
Total	<u>\$5558 88</u>

Expenditures.

The expenditures for and on account of the Society from January 26, 1897, to January 25, 1898, were as follows :

F. C. Curtis, services as Secretary	\$350 00
F. C. Curtis, expenses of office	55 90
C. H. Porter, services as Treasurer	150 00
C. H. Porter, postage, expressage, etc.	39 76
Wm. J. Dornan, printing <i>Transactions</i>	1100 27
Albany Medical Annals, 1000 copies of paper, and distribution of same	250 00
Young Men's Christian Association, rent Jermain Hall	150 00
R. C. Schultz, stenographer	75 00
J. M. Mathews, expenses of	70 00
The W. A. Choate Co., rent	75 00
Ten Eyck & Lansing, insurance on <i>Transactions</i>	14 70

Amount carried forward \$2830 63

34 REPORT OF COMMITTEE OF PUBLICATION.

Amount brought forward . . .	\$2330 63
M. E. Stonehouse, addressing envelopes, postage, etc. . .	67 10
Trunk Line Association	17 00
Wm. M. Stetson, stationery	6 50
S. H. Wentworth, printing, etc.	50 83
Services of pages at meeting	18 00
Eli H. Long, postage	4 00
Albany Calcium Light Co.	8 00
Brandow Printing Co., printing, etc.	97 20
National Express Co., expressage on <i>Transactions</i>	81 97
Total	<u>\$2681 23</u>

Recapitulation.

Total receipts	\$5558 88
Total disbursements	2681 23
Balance in Treasury	<u>\$2877 65</u>

2. REPORT OF THE MERRITT H. CASH PRIZE FUND.

Accrued interest at date of last report	\$111 24
Accrued interest to January 1, 1898.	24 68
Balance.	<u>\$135 92</u>

The Prize Fund (\$500.00) and accrued interest (\$135.92) are on deposit in the Albany Savings Bank.

CHARLES H. PORTER,

Treasurer, and Trustee Merritt H. Cash Prize Fund.

ALBANY, N. Y., January 25, 1898.

3. REPORT OF THE COMMITTEE OF PUBLICATION.

The Committee of Publication awarded the printing of the *Transactions* to William J. Dornan, of Philadelphia, by whom the printing was commenced February 15th, and the completed volumes were distributed to members and exchanges August 12th.

An edition of 800 copies was printed; of these 280 were sent to members, 140 to medical libraries and other State societies, as directed by the By-laws; 325 have been disposed of to county societies, the proceeds from which have been about \$400, and there remain at this time about fifty copies in the possession of the Society. The cost of the publication was \$1100.

Of fifty-seven papers presented at the last meeting forty-six were printed, filling 425 pages of the volume; the minutes, committee reports, obituary

sketches, and lists of the represented county societies which are a necessary part of the volume, add to its size 169 pages, making a volume of 585 pages, which is in excess of the desirable limits of our volume, but which it did not seem possible to materially curtail.

Respectfully submitted,

FREDERIC C. CURTIS,
DANIEL LEWIS,
WILLIAM WARREN POTTER,
CHARLES H. PORTER,

Committee.

4. ANNUAL REPORT OF THE STATE BOARD OF MEDICAL EXAMINERS.

To the Medical Society of the State of New York :

In accordance with custom, the report of the State Board of Medical Examiners to the State Medical Society is herewith submitted.

The report of the Regents' office on similar matters, as annually presented to the public, is a *résumé* of the work of the *academic* year ; hence it has been thought wise to make this report cover the same period. The following figures, therefore, unless otherwise stated, bear upon the academic year ending July 31, 1897 : Total number of candidates, 862 ; accepted, 627. State Board candidates, 801 ; accepted, 580 ; rejected, 24.8 per cent. Homœopathic Board candidates, 47 ; accepted, 37 ; rejected, 17.7 per cent. Eclectic Board candidates, 14 ; accepted, 10 ; rejected, 23 per cent.

Five examinations were held during the academic year, viz., in September, 1896 ; January, April, May, and June, 1897.

Since September 1, 1891, 37 examinations in all have been held, and from a list of 3290 candidates 3103 were examined. Of these latter, 2399 were duly licensed ; the total rejections being 704, or 22.68 per cent. The average rejections for the above period were as follows : State Board, 19.3 per cent. ; Homœopathic Board, 16.5 per cent. ; Eclectic Board, 26.70 per cent.

Most of the rejected candidates have subsequently been re-examined, in some cases repeatedly, as evidenced by the fact that of the 3103 examined but 181, or 7 per cent., have failed to secure a license. Since the enactment of the law 1192 practising physicians have applied for indorsement of their credentials under provisions of the law, of which number all but 143, or about 12 per cent., furnished satisfactory legal claim to such right.

As clearly set forth in a previous report, and as forcibly brought out by Mr. Parsons, Director of Examinations, in his annual report to the Regents of the University, the figures as above given are an indication only as to the results achieved by those who, *à priori*, were fitted to enter the examinations. This entrance test in itself has been of sufficiently high standard to debar many persons from even being admitted to our examinations, hence it will be safe to assume that more than 30 per cent. of those who actually applied and of those who were actually examined were refused either admission to examinations or license to practise.

The total number of candidates examined during the year who were grad-

uates of New York institutions was 545, and it is a pleasure to again be able to make the statement that their examination-papers were more satisfactory than those presented by graduates of medical schools outside the State.

As is probably well known, the examination for license is divided into seven subjects by the law, for each of which a written examination of a three hours' session is allowed. The topics are : 1. Anatomy. 2. Physiology and hygiene. 3. Chemistry. 4. Surgery. 5. Obstetrics. 6. Pathology and diagnosis. 7. Therapeutics, practice, and materia medica.

The candidates coming before the State Boards during the year 1897 failed to pass in these studies in the following numbers: Anatomy, 70; physiology and hygiene, 53; chemistry, 73; surgery, 56; obstetrics, 58; pathology and diagnosis, 83; therapeutics, practice, and materia medica, 83.

A clause in the law permits New York State Boards of Medical Examiners to indorse licenses obtained in other States whenever the requirements of this State shall be met in all particulars. Up to the present time we have felt ourselves unable to recommend the indorsement of licenses obtained in other States because, although in many States the New York standard is approximated, the preliminary requirements, as well as the rigorous system of examination in force here, do not obtain. We do not care to lower our standard; the State Medical Society has placed itself on record as opposed to any such step, and the lawmakers, up to the present time, have conformed to its wishes in this particular, considering it unfair to our own graduates to admit licenses from other States on lower general standards than are required of our own candidates. A proposition has been made, however, to amend the law so that reciprocity may be carried on between States where, because of the non-existence of the excellent safeguard possessed by us in our Regents' body, similar tests cannot be by such States applied. The substance of the proposal is that each case be judged on its individual merits; thus, for instance, a candidate from another State presenting himself to the Regents for the indorsement of a license should prove,

1. That he has the preliminary academic requirements.
2. That he has attended four full courses of lectures at a school of medicine recognized in this State as of good standing.
3. That he was licensed by a State Board of Medical Examiners whose examination-tests were equal to ours.
4. That the methods of examination conducted at the time when he applied for license in a foreign State were properly safeguarded. It is the belief that it would be but the part of justice to indorse the license of such a one.

If the foregoing conditions were complied with, it is for the Society to determine whether such licenses should be indorsed by the Regents, thus entitling the holder to practise in this State without further examination. The Medical Society of the State of New York will undoubtedly be willing to consider this question in all its bearings, and make known its views on this subject in order that we may be guided thereby.

This report is not intended to show the ratings of the various medical

colleges in the State. It is a cause for congratulation that all the medical colleges of this State have displayed commendable zeal in elevating their standards, prolonging their courses of studies and adding to their chairs. Full records are on file in the Regents' office and are open to inspection.

The average attendance at medical colleges in the State of New York, contrary to the impression prevailing at the time of the passage of the law, has increased, more particularly in the colleges in the interior of the State.

A proposition finding ready support has been made to the effect that where a candidate for the degree of doctor of medicine has, previous to attending his three full courses of medical lectures, obtained a degree such as A.B. or B.S., his four years' work at the academic college shall be considered as equivalent to a fourth course of lectures, provided that the studies of physiology, hygiene, zoölogy, and botany were included in the curriculum on which the degree was granted.

During the past year, on charges made and properly substantiated, a State license was, on recommendation of this Board, revoked by the Regents. Another case similar in character is pending. If the law creating the State Board of Medical Examiners is to be amended, it is suggested that additional powers be given to the Regents to act as a court of judicial inquiry to determine the revocation of a license put in jeopardy because of charges made.

Since the establishment of the law, at the instance of the State Medical Society, the personnel of the State Board of Medical Examiners remained unchanged till the death of Dr. William C. Wey, of Elmira, on June 30, 1897, who had been President of the Board from its inception. It would, perhaps, be useless for us to say aught in eulogy of one who was so well and so favorably known to the members of the Medical Society of the State of New York. To us, however, who were in such intimate relations with the deceased, the blow was particularly keen. He was one of the most capable, faithful, and interested members of the Board, as well as an impartial and judicious presiding officer. As a mark of respect to his memory the members of the Board attended his funeral at Elmira in a body, and ordered a record of his life and death spread on our minutes, assigning to Dr. Potter the task of preparing the same.

The Regents appointed as Dr. Wey's successor Dr. A. Walter Suiter, of Herkimer, to fill the unexpired term of the deceased. Dr. Suiter has been assigned by the Board to the chair of physiology and hygiene, and Dr. Potter was chosen Acting President until the next meeting. At the annual meeting held last night the following officers were elected for the ensuing year: *President*, William Warren Potter, M.D., of Buffalo; *Secretary*, Maurice J. Lewi, M.D., of New York; *Members of Question Committee*, Drs. Maurice J. Lewi and George R. Fowler.

5. REPORT OF THE COMMITTEE ON LEGISLATION.

To the Medical Society of the State of New York :

A retrospect of the labors of your Committee on Legislation suggests an expression regarding the constant vigilance required to protect the interests of the great body of the profession which we represent. Our only safeguard lies in our efforts to perceive, interpret, and avert the dangers by which we are so often menaced. The subjects that are presented to your committee for consideration and action are always portentous for good or for evil. They have seemed unusually so during the year just passed. It may properly be said that the Legislature of 1897 left a notable record for the number and importance of proposed amendments and measures designed to affect the interests of the medical profession and, reflectively, the great educational system of the State.

We are gratified to be able to state that not one of the legislative propositions which would have operated unfavorably to our progress was finally enacted. This statement could not be made, however, had it not been for the splendid moral and material support which your committee at all times received from the members of the profession throughout the State who are represented in this body, and the very efficient co-operation of the committees and members of the Homœopathic and Eclectic State Societies, together with that of the Medical Society of the County of New York, the Medical Society of the County of Kings, the Medical Society of the County of Erie, and others.

The fact is now established that in no other respect does the existing medical law produce better results than in matters of medical legislation. It is now possible, and, whenever necessary, practicable, to bring together in harmonious union for common purposes the committees of the three State societies and the always efficient committees of the county societies having a Standing Committee on Legislation, and by the combined influences which they are able to exert an organization is at command which is well-nigh invincible. This has been frequently demonstrated in the near past.

By the aid of the telephone, telegraph, and other methods of communication we were constantly informed by each other, and thus no vantage ground was lost nor opportunity neglected to secure the influences desirable. The only thing lacking to make this combined organization a perfect protective system is the failure of the county societies in most instances to appoint a Standing Committee on Legislation. This should be required by the by-laws of the State Society, and would be of incalculable benefit to the Central or State Committee in facilitating its efforts to secure the attention, enlightenment, and influence of individual Senators and Assemblymen. It is surprising how often, through no fault of theirs, and unintentionally, misdirected votes are cast by these officials because of ignorance of the true purposes involved.

We take this occasion to acknowledge our especial indebtedness to the able and distinguished chairmen of the committees representing the Homœ-

opathic Medical Society of the State of New York, Dr. John M. Lee; the Medical Society of the County of New York, Dr. Frank Van Fleet; the Medical Society of the County of Kings, Dr. James McF. Winfield; and the Medical Society of the County of Erie, Dr. William Warren Potter.

One of the first propositions to engage our attention was what now deserves to be called the *perennial* effort of the opticians to obtain the privilege of practising methods which ought only to be those of especially qualified medical men. This bill was referred to in our report of last year. The title adopted at the last session of the Legislature was "An Act to Regulate the Practice of Optometry in the State of New York." The bill was somewhat modified in order to meet some objections which were formerly raised, but still contained in the main the provisions hitherto considered detrimental to the public health. Your committee, with the assistance of the Committee on Legislation of the Medical Society of the County of New York, that of the New York Ophthalmological Society, and prominent ophthalmologists and others throughout the State, proceeded to organize a determined opposition. A hearing was demanded, the result of which was that the bill was defeated on final vote in the Assembly, while in the Senate a vote was not reached. It is expected that the proposed measure will be introduced again this year, but it is believed that it will meet a similar fate.

Perhaps the most inconsistent bill which came to the notice of your committee was the attempt on the part of the New York State Medical Association to demand an equal representation on the State Medical Examining Board to that of the Medical Society of the State of New York, which is recognized by the law establishing the Board as the true exponent of the medical profession of the State apart from the Homœopathic and Eclectic branches of medical practice. A bill was introduced under what was supposed to be the most favorable political auspices (its introduction and progress having been intrusted to the able leaders of both Houses), providing that this association, the history and purpose of the organization of which are so well known to us all, be accorded the privilege of nominating from year to year to the Regents a number of candidates from whom successive appointments be made in such manner as to place it upon an equal footing in the Board. As will be at once observed, the design of this scheme was revolutionary in character, and, to say the least, your committee regarded it as disturbing and retrogressive so far as the beneficial operation of the law is concerned. This association, according to recent reports, has a membership, exclusive of those who are already represented on the State Medical Examining Board through the Medical Society of the State of New York and its constituent county societies, of 296 physicians! It is easy to demonstrate that a vastly preponderating majority of those who compose the membership in this seceding organization (780 in 1895) have also membership in their respective county societies which are always represented on this floor. Hence the unanswerable argument appears that if such a measure as the one proposed should be enacted, at least two-thirds or three-quarters of all their members would have double representation on the Examining Board. If they are entitled to any representation what-

ever as such association, then with equal if not much greater propriety could several of the voluntary medical associations of the State demand such recognition. These bills were known as Senate bill 671 and Assembly bill 1255, and upon their presentation your committee at once placed itself in communication with every prominent member and delegate and requested co-operation. A joint hearing by the Reference Committee of both Houses was secured. Your committee submitted a brief on the occasion, containing reference to the numerical and representative comparisons, which was so far appreciated that the bills never emerged from the pigeon-holes to which they were assigned.

On account of the vigorous application of the medical law and the rules adopted by the Regents in the matter of licensure, constant watchfulness is required to prevent the enactment of bills exempting certain individuals from examinations in order that they may legally continue in practice. Believing that the passage of even one such act would establish a very dangerous precedent, your committee has been for several years past determined that no bill of that nature should ever be reported from the Reference Committee; therefore success has been the rule until the last days of the session of 1897, when by an unjust and manifestly improper rule, which seems to be peculiar to the New York Legislature, an exemption bill amending Section 148 of the laws, and probably designed to favor only a very few individuals, was taken from the original Reference Committee, which had promised not to report it, and through the Committee on Rules it was reported and hurriedly passed, along with the 700 bills which were rushed through in the last ten days of the session. We were at once notified that the bill was in the hands of the Governor, to whom we made an appeal, with the result that the proposition failed to receive his sanction, and did not become a law.

Many bills in which this Society is directly or indirectly interested were introduced, but failed to become laws. Among them were several relating to the organization and administration of the State Board of Health; one of the latter was especially interesting to your committee, as it was designed to reorganize the State Board of Health upon a more efficient basis than it can possibly have under existing laws. Under its provisions the public health interests could be placed in the hands of a salaried commission, the members of which would be required to devote their entire time and energies to the important duties of the Board. The Empire State cannot expect the highest efficiency from the gratuitous service of physicians. Others were: repealing the charter of the Podic Society in the State of New York, which legalizes the special surgery of the chiropodist, who may, under its provisions, perform surgical operations on the human foot, in character from a simple operation for the removal of a corn to that of the most complicated case of talipes.

The bill to abolish coroners' juries failed. Such a measure would be a step toward the abolition of the office of coroner altogether, a reform to which this Society is committed. The bill referred to in our last year's report, calculated to place physicians on an equality with undertakers, by requiring that their fees for the treatment during the last illness of a dece-

dent be paid by Surrogate along with the funeral expenses, failed again this year. Also a bill exempting physicians legally from jury duty. The negative propositions are mentioned in order that the Society may be able to more fully appreciate the importance of the work of the committee and to emphasize the position which this body occupies as the custodian of professional legislative interests, both aggressively and defensively, in this great and prosperous State. A most important bill which failed to be enacted related to the establishment of dispensaries in the State of New York. It passed both Houses, but failed to receive Executive approval. So much discussion has been aroused by this proposed measure that, without doubt, the attention of this Society will be called to the subject under another order of business than that of reports of committees. Your committee refrains, therefore, from making a detailed expression on this bill. The committee acted in conformity with your instructions at the last meeting of the Society upon the following measures:

The bill designed to affect the reduction of the fees of pharmacists for license to dispense liquors under the co-called Raines Law. We are pleased to state that the bill was passed in the form of an amendment to the general law.

We opposed the bill creating a State Veterinarian and aided in securing its defeat, thus leaving the inspection of cattle in the control of the State Board of Health.

We exerted our influence for the enactment of the amendment to the medical law (agreeable to your direction), providing that the Regents may, in their discretion, accept as the equivalent of the first year of the fourth requirement evidence of graduation from a registered college after four years of general preliminary education in addition to the high-school course fixed by law as a minimum, provided that such college course shall have included not less than the minimum required for each admission to advanced standing in languages, physics, chemistry, and biology, and provided that each substitution be specified in the license. This was designed to encourage graduation from literary colleges preliminary to entrance upon the study of medicine. The bill passed both Houses, but was unfortunately allowed to die by the Governor.

We regret to state that the Special Committee to which was entrusted the formulation of a bill to regulate the practice of midwifery were not able to present a bill to the committee for introduction; hence no effort was made to enact a general law to apply to the counties of the State. Special bills were passed, however, establishing a Board of Examiners for midwives in Chautauqua County, and amending the act establishing the Board for Erie County by increasing its membership to nine instead of five, the term of office to be three years.

Regret is also expressed that the special committee on medical expert testimony did not agree upon a bill for presentation at the last session. It is understood, however, that the subject is now being earnestly considered by them, and that the necessary co-operation of committees of other medical organizations of this State, also those legal and medico-legal, will be invited. The able chairman of the special committee will later on at this

meeting address the Society upon this very important topic, when an opportunity will be had for discussion.

The amendment relating to the penalty section of the medical law (establishing a minimum penalty), which was directed at the last meeting of the Society, was not introduced. For certain reasons, and because of some forbidding political influences by which we were threatened last winter, it was deemed advisable to proceed very carefully in the matter of amending our law. It was accordingly postponed, but is now in preparation, and will be introduced during the current session.

This remark applies with equal force to several other subjects which had been referred to your committee. Our most important duty, under the circumstances, seemed always to be to prevent the enactment of damaging legislation rather than to attempt to effect new legislation.

Too much activity in the latter respect would have endangered our prospects in the former, in which, as has been before stated, we were abundantly successful.

Your committee lent its influence to the educational interests of the State to prevent the lowering of the standard for admission to the practice of law. In our judgment this subject reflectively concerned our profession, and we believe that we should at all times be prepared to take a part when retrogression as to the advancement of educational standards in general impends.

We ask indulgence for the length of this report, and in extenuation thereof urge the great importance of the topics to which we have referred.

All of which is respectfully submitted.

A. WALTER SUITER,
EVARTS M. MORRELL,
W. G. MACDONALD.

THE ANNIVERSARY ADDRESS.

THE OBLIGATIONS OF THE PHYSICIAN AND THE LAYMAN TO EACH OTHER.

By SENECA D. POWELL, M.D.,
NEW YORK.

LADIES AND GENTLEMEN AND FELLOW-MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK: The spirit which prompts me to undertake to call your attention to the relations which exist at the present time between the medical profession and the general public is not that of one who considers himself capable of censuring and directing, but rather the honest view of an humble member of a most liberal and charitable profession. As Barnum said, "The American people like to be humbugged," and there is no one thing in which they are more easily humbugged than that of caring for the health of themselves and their families. When a man has need of a lawyer he secures one who by his ability has demonstrated his familiarity with the profession which he follows. If it is a question of selecting a medical man he contents himself, as a rule, with the man who is popular in his society or his church, or else a neighbor, on whose advice he would not rely on a business question, to make the selection for him. Sometimes he will even take the advice of a passing stranger, and place into his hands the lives of those whom he should consider more valued than the most precious jewels.

There is a general tendency affecting all grades of people toward that which will create a sensation, and the advancement of science having disturbed very materially our old creeds, and looking around for others, we have been disposed to accept those which seem newer and which possess a larger amount of the marvellous. This is evidenced by the success of the travelling doctor, who goes from

place to place, heralded by posters and trumpets, and who cries the virtues of his wares and his miraculous cures from the housetop. The old-time doctor is passing away, and in his place we have the up-to-date medical man who, having imbibed his share of the spirit of the times, is losing in many respects more than he gains. In many families there is no longer the old family physician; neither do there exist those ties which should exist between the medical man and his patient; and just who is to-blame for this I am not sure. On the part of the physician I have been led to suppose that his desire to grow rich rapidly has led him into many pitfalls, and has often stranded him and lost him in the driftwood of the unplaced and unknown. Business ways and business means of being brought into the profession, and many a man's yearning for notoriety, are being gratified through the daily papers. The public are indebted to the medical profession, not only for the care and attention which they receive from them, but also in the security in which they are living from the ravages of contagious diseases. There is scarcely a town or village in this State that does not owe its protection in this respect to the physician. It is to him they turn when cholera is at their doors, when diphtheria is in their houses, and when contagion is abroad in the land; but this is all forgotten when the fruits of his labors are reaped. It is his work which has reduced the death-rates in our largest cities to the lowest point in the history of the land. It is his work which has built up the munificent fortunes of life-insurance institutions. It is his work which constitutes the true charity of the world over. The most laborious work is none too hard for him, and the best years of his life are often given in his efforts to assist humanity, and his reward lies in the empty glory of a discoverer.

In looking over the board of management of practically all of our large charitable institutions, it is exceptional to find the name of a medical man on this board. The control of these institutions is held with a firm hand by the laymen, and the physician has no voice in the policy of the institution. Organized medical charities, however largely endowed, would lose at once all of their charity were the medical men disconnected from it. Practically all that is good, unselfish, and devoted in these charities is represented by the profession. I believe that the most superficial inquirer into these facts will be ready to admit the truthfulness of this statement. Hospitals and dispensaries, whether private or public, should, in my

judgment, be under the absolute control of medical men, as it has been demonstrated that the institutions so controlled come nearer attaining the name of "charitable institutions." Whenever a hospital or a dispensary is managed by a church, then its emoluments are used to advance the views of that particular religious body. It is true that some of our hospitals are non-sectarian. It is also true that the statement made above will be found to be correct. There is such an amount of red-tape necessary to gain admission into some of our institutions that it is a disgrace to the land in which we live that such is a fact. Not very long ago a medical man who, when in the prime of life, served a certain institution as its visiting physician for many years, encountered reverses in his old age and was in want of hospital care. This man was refused admission to three hospitals in the City of New York upon the plea that their rules were not being complied with. It is not a charity to care for the sick when we are looking for some kind of recompense for our well doing. It matters not whether that recompense comes in the shape of a money consideration or a gratification of some cherished wish, or the furtherance of some selfish belief. Charity knows nothing of creed; nothing of recompense; nothing of hereafter. It only knows that there is a suffering human being, and its fulfilment is accomplished when that charity is given for humanity's sake alone.

The medical man is expected to protect the public from the ravages of disease when called upon as a citizen, and it is his duty as a citizen to respond to these calls without any compensation, if need be; yet when they come to the public through their constituted legal societies they have to fight every step against obstacles placed in their pathway by the very public who so willingly accepts so much from them. There has not been a single safeguard enacted for the protection of the public by this State Medical Society but what it has had to go into your halls of legislation and fight for it for dear life. We ask you to give us the authority to say who shall practise medicine in the State of New York! We ask you to help us drive from our midst those who are not under the control of the legal societies as constituted by your representatives. We ask you to do away with the mockeries of faith-cures and such ilk, and let the laws of this State be so extended that it will be impossible for any one to practise medicine not legally authorized so to do. As our laws stand now, we have no power to prevent the so-called

healer and performer of miraculous cures by the laying on of the hands, and such superstitious proceedings, from flooding the country with misleading literature and imperilling the lives of thousands of ignorant and despairing sick ; and while I do not intend to throw more blame upon any one class, yet I cannot refrain from urging that some steps should be taken to repress the publication of the claims of these mountebanks in our newspapers. If such a step were taken, not only would it be an easy matter to drive these people from among us, but much good would be attained in suppressing criminal malpractice and improving the morals of our people. I yield to no one in appreciation of the dignity of this organization and the importance of its influence. It is the ancient and legally recognized authority upon professional standing and medical ethics. The size and the character of its membership make it a power in our profession—perhaps unequalled by any like association in this country. Its spirit is contagious ; its deliverances are esteemed as professional oracles. Its efforts toward any object carry the prestige, power, and effectiveness which naturally pertain to a body of men distinguished for the highest professional knowledge and success. Such being the case, a certain leadership belongs to this Society which cannot be refused. It is expected, in a sense, demanded, of us. The position is ours, and its responsibilities cannot be properly ignored ; nor can the duties of such leadership be safely neglected. It belongs to this Society to take the initiative in the correction of abuses where discovered and in the introduction of real improvements. To this end you will permit a suggestion or two not inappropriate to the occasion, and which I heartily commend to your good judgment and enlightened professional conscience. My first point is not so much a question of legal justice, but rather a matter of moral equity as between professional members, and especially as between two classes with unequal opportunities and rewards. Of course, it belongs to us to lead the medical profession in the adoption of all measures calculated to secure to every member full legal rights ; but quite beyond this I think it will be conceded that upon the more favored and successful practitioner rests a special moral obligation to see that no procedure of his works an injustice or is occasion of needless embarrassment to his less fortunate members. I am satisfied that such injustice and embarrassment are occasioned by the readiness of the community to abuse opportunities for free medical and surgical treatment, together

with the possible indifference of some physicians and their failure to investigate and discriminate in such cases. It is not my thought to check a real benevolence. I would be the last man to deny the reliefs and benefits of science to the poor. It is a glory of this State that no one, in whatever extremity of poverty, needs to perish or suffer from lack of prompt and skilful medical attention. But the policy, or at least the practice, of some dispensaries and hospital associations, under the management of the laymen, puts a premium on meanness and withdraws from the local practitioner his natural clientage, by compliantly serving at the free dispensary those who are able to pay for what they receive. Not only so, but to appease an uneasy conscience, a nominal fee is asked and given, and further moral obligations are lost to view. This is, in fact, abetting fraud. It is an outrage upon public confidence, as well as a very palpable injury to a large class of practitioners. As stated before, the management and policy of these hospitals and dispensaries which come under my criticism remain in the hands of the layman. The physicians and surgeons connected with these charitable institutions, while not connected with the management, are more or less responsible for this state of things. We freely admit that the case presents some difficulties, but surely new rules or more conscience, care, and discrimination are demanded. There is an unidentified something in the make-up of the medical man which you do not find in any other class of citizen. I speak of that jealousy which exists as between himself and his brother practitioner which makes him give free medical attendance to a patient who is not able to pay the fee demanded by him, but is able to pay a smaller fee to his less successful brother. I doubt very much if any legal act could be devised to meet the emergencies presenting themselves to us in this question; but if the medical profession would as a body respect the rights and privileges of each and every individual member of their august body, and would see to it that no act of theirs should tend to jeopardize the interest of another, then would come the solution of this entire difficulty without the intervention of the law. In the first place, medical men who have given years of work and attendance to institutions have been dismissed from these institutions without cause; in fact, I can recall instances where whole medical boards have been retired; and I can recall also, much to my sorrow, the fact that the places occupied by the retiring medical board were not cold before a new set

were installed. I am not a believer in reducing the practice of medicine to the status of trade. I do not believe that the profession should organize itself into a trades-union for the furtherance of the interest of its members professionally, politically, and financially; but I do believe that there should be that honesty and respect for other's rights which should make men know the justice or injustice which has been dispensed to their predecessors before serving in the capacity of successors. But my especial point is that, if we do not sustain honorable members of our own profession in their expectation of just and courteous treatment, we injure and degrade the profession itself. A certain delicacy and guarding of professional rights and honor are certainly due from every member of the fraternity; and every failure in this regard not only reacts upon ourselves, but is an injury to all. And this brings me to another very important consideration affecting our relation to the profession at large, the State, and the community. It is an undeniable principle that with a responsibility of any sort must go the power and the supervision in the matter under consideration. Now, since this is the legally instituted and recognized medical society of the State of New York, and the body in which inheres the major responsibility for whatever action may be taken affecting medical affairs, it follows that all legislation relating to the practice of medicine, either as between physicians or between the physician and the community, should originate in this Society, and be under the control and administration of this Society. In that view, and with a hope that I have convinced you of the honesty of our purpose that we are working for the good of the community and the State at large, let me beg of you to go out from this hall determined to use all the influences at your command for the furtherance of honest medical charity and the destruction of quackery in all its phases.

COMMUNICATIONS.

I. MEDICAL EXPERT TESTIMONY.

BY J. G. RANSOM, M.D.,
DANNEMORA.

IF I could offer no other apology for presenting for your consideration, once more, this much-discussed question of medical expert testimony, I should have it in the recent decision handed down from the Supreme Court of the State of Illinois in the Dixon case, where it is affirmed that a medical expert witness is obliged to testify, the same as any other witness, for the same fee.¹

Such a decision by a learned judge, in so progressive a State, that we have not the right to the keeping of our own self-acquired and held opinions, is more than a mere novelty in experience; it is a danger-signal, and should arouse even the most indifferent member of our profession to a keen sense of the danger which lurks in this very decision to our status as a profession. Neither is this view of the way by which medical expert testimony may be obtained restricted to the courts of the State of Illinois, for the writer has three times contested this very point in the Supreme Court of this State: once in a trial for murder, and twice in suits for damage resting upon injury. In these cases answer was refused hypothetical questions, or those necessitating the expression of an opinion, because subpoenaed as a witness to facts. Counsel argued the point. In two cases the court was inclined to sustain the questions, but on further discussion ruled them out; in the third case, the court sustained the objection at once, and I doubt not there are many medical men here who have had a similar experience in the courts.

This question of medical expert testimony has come to be taken

¹ These are the words of Attorney-General Aiken as stated in a letter to me.

too much for granted, and as a ground for carpers and alarmists ; it has sounded in our ears so long, and so often, that we have come to look upon it, as we do upon any other of the standing unsettled questions of the day—to be talked of, to be admitted as all wrong, and nothing to be done about it. To speak of medical expert testimony is not to interest, is not to enkindle enthusiasm, and there is little wonder at it. Although for nearly half a century this question has been before the profession, nothing has really been accomplished in the way of legislation, the so-called New York, Illinois, and Minnesota bills all failing to become laws, and yet I am not exceeding the limit when I state that it is one of if not the most important question that can possibly claim the attention of our profession to-day ; for it is to this unfortunate fact of our relation to the public in the matter of medical men appearing in the courts that are due in a large degree just such decisions as that of the Illinois courts.

Indirectly, through the same cause, it seems not unlikely that, with the votaries of the law, we shall come to be classed as mere tradesmen, as is already the case with the profession in England under a recent decision.

Individually we may say, What have I to do with this question ?

But every medical man has to do with it, for by the status of his profession must he stand or fall. These are days of rapid progress, and tremendous changes in public sentiment and opinion take place rapidly ; deep inroads have already been made upon our professional hold upon the community in many ways too familiar to require mentioning here ; it is only in the light of the mighty progress of our profession, beyond and above all other professions, that we are able to sustain ourselves ; but, notwithstanding this progress, it must be evident to all observers that the trustful and deep-seated confidence that attached itself to the saddle-bags and lancets of the fathers of medicine, who bled, nauseated, and purged, in undisturbed confidence, has given place to a spirit of severe criticism and more or less incredulity. We must, therefore, grapple with this question, so important to our well-being.

It is gratifying to note that this question of medical expert testimony is rapidly coming to the fore, and, in spite of the inertia which has existed with reference to its real importance, is now the field of discussion for a large number of able writers in our own profession, as well as of lawyers and jurists, and in many States

efforts are being made to solve this difficult problem. In our own State the Medico-Legal Society has done a great deal of work in this direction, and are desirous of co-operating with us in committee, and have extended many courtesies. The Homœopathic Society has also in process a measure on which they have kindly invited your committee to confer, and a general desire on the part of all committees representing different societies to confer. There is also a general committee extant, made up from representatives of the Medico-Legal, Homœopathic, and Eclectic Societies, and the New York Bar Association, who, I understand, are about ready to report a measure for enactment.

As you are aware, our own Society three years ago appointed a special committee to formulate a bill looking to improvement in the methods of obtaining medical expert testimony. A bill was drafted, ordered to the Committee on Legislation, introduced in the Legislature, went to the Judiciary Committee, and was not reported out, because of a claimed unconstitutional feature, as reported to you by your Committee on Legislation last year. Since that time your committee, in co-operation with the Committee on Legislation, have done a great deal of work in gathering information and opinions relative to how the problem can be solved. The general consensus of opinion, as the result of all the agitation and discussion of this subject, is, that experts should be appointed by the trial court, or presiding judge, and for each case as it may come to trial. Standing commissions of experts do not seem to meet with general approval; it is also almost as well established that there should be some standard of qualification. The bill mentioned above was defective, first, in that it did not define an expert by establishing a standard of qualification; second, that it failed to specify as to how the report should be made to the jury or court; third, the unconstitutional feature of restriction in cross-examining.¹

Such a measure should provide for the appointment in all trials requiring medical expert opinion of the medical expert by the presiding judge, who shall appoint such expert witnesses, not exceeding three in number in each case, to pass upon all hypothetical questions. Said experts shall have access to all evidence, and to the person of the defendant, in the presence of all the experts, when it shall concern his mental or physical state, as well as have

¹ The Illinois bill is similar to the New York bill, and the Minnesota bill essentially differs in that it places no restriction upon cross-examination.

power to examine medical witnesses as to their knowledge of the facts, and also to hear expressions of their opinions relative to the significance of observed facts, when willingly given. It should also be provided that the judge may hear proposals from counsel as to the appointment of experts in any given case. The expert or experts shall submit to the court, for transmission to the jury, a report in writing, attested by their oath, setting forth their conclusions together with the facts upon which they are based. The report shall be signed by all the experts taking part in the examination, provided they agree upon the essential points at issue; if not, a dissenting report or reports may be made by individual experts, the same as opinions are handed down from the appellate courts. In case of a disagreement as to the essential points, the judge should have power to dismiss the report, together with the experts making such report, and appoint other experts, should he deem it advisable. If counsel demand it, these experts may be sworn as witnesses and cross-examined in such manner as the presiding judge may deem pertinent and necessary to the case, the same as other experts.

The experts so appointed shall be persons of repute, holding a certificate of qualification, as hereinafter described, in the particular branch of medical science to which the question calling for expert opinion relates. Compensation for such service shall be fixed by order of the court, at a rate which shall be reasonable for professional services of such a nature, and paid in the same manner as other court expenses.

The above-named certificate of qualification is to be issued by the Board of Regents, and filed in the County Clerk's office in the county in which the holder of such certificate is a resident, such certificate to be obtained in the following-named manner :

The applicant for a certificate of expert qualification shall furnish reliable evidence to the State Board of Medical Examiners that he is legally qualified to practise in the State of New York, and is of good standing in the medical profession, that he has had not less than five years' experience in the practice of the special branch of which he desires to qualify as an expert. On the passing of such examination to the satisfaction of said board, there shall be issued to him, in the same manner as a license to practise is now issued, a certificate of qualification to give expert testimony in the particular branch or branches therein specified, and when properly

filled, any physician holding such certificate shall be eligible for appointment by the courts, or may be called by the defence as an expert witness. The testimony of any medical witness called by either plaintiff or defendant not holding such certificate shall be restricted to evidence of fact.

I have expressly left to the last of the specifications of the proposed bill the qualifications required, that it might be amply discussed, and the views of those present heard upon this feature. It is only by setting up a standard of qualification that anything like a systematic and satisfactory definition of the expert witness can be made, and it is only through this means that the profession and the courts can be protected from a species of so-called expert testimony which we are so strenuously endeavoring to eliminate. Further than this, should all other features of this proposed measure be declared unconstitutional, this one of the qualification will stand, for certainly there can be no constitutional objection taken to the qualification of experts more than to the qualification of the medical practitioner, as he is now licensed. This in itself would be a long step in advance. It has been urged that few physicians would qualify; but this would seem untenable, in the face of the fact that the qualification could be made such as not to be too rigidly discriminating. A classification of expert branches should be made and a standard of requirements set up by this Society and also by homœopathic and eclectic societies.

If judges were always unbiased, were always unmoved by the appeals of partisans and friends, if they could always be relied upon as good judges of the particular qualification of a scientific man, then these requirements of qualification might be dispensed with; but as it is, we know that judges are human and fallible, and that the medical profession, or the courts, cannot afford to rest decisions upon anything less than qualified opinions.

A bill meeting the above enumerated requirements in some degree would seem to be as satisfactory as could be formulated at this time. It must not be expected that any measure can be framed that will in every particular be perfect and not open to some objection. It is nearly, if not quite, impossible to frame any measure which will not come in collision with some trifling rule of procedure; but if we are to stop for that no progress will ever be made in this direction.

We adopt the practice of the courts in other matters, and get

approximately as near to the perfect standard as circumstances will permit. The entering wedge we must have, and a half loaf is better than none. One great trouble seems to be that a change is expected without making any changes; some things must be left to work themselves out. In the framing of so difficult a measure, it should be remembered that "expert testimony has really no part in the trial by jury;" "the expert witness is not called to tell what he knows, but what he thinks" (Mather). His function is to pass upon the significance of certain proved facts, and in this respect he is entirely unlike the ordinary witness; therefore, his true function is that of an adviser or instructor to the court; and this was the original function of the expert, and for this purpose he came to be a figure in the English courts. He should not, therefore, be considered as an ordinary witness, but should constitute a part of the court.

It is claimed that appointment of experts by the court does not protect the defendant; but there seems no more reason in saying that both the prosecution and defence should be provided for in the calling of the expert witness than in that both plaintiff and defendant should each be provided with a judge. It should also be remembered that these expert witnesses as appointed are no longer partisan, but are judicial in function, and are for the purpose of seeing justice done to all parties concerned. The great burden of opposition to these measures arises, or seems to arise, from the fear that the defence in a criminal trial shall not have the privilege of calling to his aid the whole population, it may be, as experts to testify in his behalf. The expert witness knows nothing necessarily of fact in the case, and his evidence, therefore, was not provided for in the early system of common law. It would seem that either side of the case at issue would be more likely to receive exact justice from a non-partisan disinterested board of experts than from a hap-hazard, promiscuously chosen one of experts of doubtful qualifications, paid by their respective sides. It would seem no more a violation of the constitutional rights of the defence for a judge to appoint his experts than is the action of the judge in deciding the rules of the admissibility of evidence. If the court has a right to determine what is pertinent to the case under the Constitution, he clearly has a right to determine a correct interpretation of the facts by a competent body able to pass upon such facts, and there always remains the right of appeal, and there is nothing

in this measure to prevent other licensed experts being called by the defence.

In formulating any measure which will most nearly meet the requirements in the direction of the best methods of obtaining medical expert testimony there are three essential things to be considered: First, the protection of the State or people; second, the accused; third, the profession. In the suggested measure the first is met by the appointment of all experts by the courts. In the second the accused finds his protection in the justice and fairness of an impartial board of experts to pass upon any and all questions of a hypothetical nature, evolved from proven facts; and thirdly, the profession finds its protection in the qualification of the expert appointed.

A great deal of the trouble in the formulating of any satisfactory measure lies at the door of the law, and it is not altogether with either the legal or the medical profession. Before any satisfactory working measure of procedure can be put in operation there must be a modification of the laws, and to obtain this there must be co-operation of both the professions of medicine and law. Neither profession alone can easily accomplish the desired result; there must be united effort.

There is especially an important feature in the matter of evidence to be determined, and which to properly settle would probably require a change in the rules governing the admissibility of evidence, and that is the admission of a very important form of so-called expert testimony which is the expression of an opinion based upon personally observed facts, such evidence, however, not being expert evidence proper. With reference to constitutional right of the defence to calling expert witnesses other than those appointed by the court, I do not think we need to consider, for so long as a standard of qualification is set up there can be little feared from a qualified expert in opposition to the regularly appointed expert by the court. He would stand in an unenviable position, and no doubt, after a short time, the practice of calling such experts would give place to depending upon the experts appointed by the courts, as I believe the superior opinions rendered would in time come to inspire confidence and a sole reliance upon their reports to the court.

Not only should we unite in a determined effort in the work of placing the giving of medical expert testimony upon a basis that

will no longer make the appearance in court of the medical expert witness a signal for newspaper ridicule and disparaging comment upon the part of the general public, but we should also demand of the legal profession certain concessions, certain modifications of the rules of the admissibility of evidence in criminal procedure, that the expert witness may have that protection which rightly belongs to the dignity of his position in the properly conducted criminal trial. We as a profession should contest the point of being represented in the courts by incompetent and unrepresentative men. We should contest the point that we are forced to give our opinions as evidence without compensation; we should contest the asking of misleading hypothetical questions as now propounded, and the answering of categorical questions intended to entrap the witness. As a Society, we should be found in the fore in this work of bringing about these desirable ends. Surely a society which has always stood as a sponsor for so much that has meant progress in medical legislation, a society so rich in the heritage of accumulated accomplishments, of high attainments, and exact methods of scientific thought and work, cannot afford to be outstripped by other societies, in a reform of which it is essentially the parent. Not only should this Society appoint a committee to confer with other societies and representatives of the law, but it should provide means by which legal advice could be paid for, and all the expenses arising from a legitimate effort to formulate a measure which will pass all legal scrutiny and become a law. Not only should they stand back of their committees, but exact of them some tangible result in the way of legislation.

The Society, in the light of the position it has taken in this matter, can rest at nothing short of some such law as indicated, spread upon the statute books of this State. We as a society have theorized and experimented long enough. It is time to act, and action means the securing of this much-desired reform. I therefore move you, Mr. President, that a committee of five be appointed by the chair, authorized to confer with all representative medical and legal bodies, and authorized to shape a measure representing the views of this Society in the matter of obtaining medical expert testimony, for introduction to the Legislature.¹

¹ Such a committee was appointed, for the continuation of work inaugurated at a previous meeting of the Society, and Dr. Ransom continues as chairman of the committee.—
SECRETARY.

[In the preparation of this paper I am indebted to my fellow-committeemen, and especially Dr. Carlos F. McDonald, Dr. A. W. Suiter, and Mr. R. Mather, for valuable matter and suggestions from their writings on this subject.]

DISCUSSION.

DR. EVARTS M. MORRELL, of Yonkers: There is no subject of greater importance than this of medical expert testimony, which has been so ably presented. Much discredit is brought upon the profession by the conflicting or inexpert testimony of physicians, especially in murder trials. Larger fees should be secured for medical expert testimony, whose services in these cases are often quite equal to that of the lawyers in the case, but they are frequently expected to testify for a pittance. I am glad that a movement is inaugurated to agitate this good work.

DR. A. WALTER SUITER, of Herkimer: It has fallen to my lot to be on the Committee on Legislation for a number of years past, and to have to consider this vexed question which is, at the present time, agitating so large a part not only of the medical profession, but of the legal profession. Two years ago, as chairman of the Committee on Legislation, I took charge of the bill prepared by the special committee appointed for this purpose, and I endeavored to make some impression in its favor upon the reference committee of the Legislature, the Committee on Judiciary of the Assembly. Two or three other physicians assisted me in endeavoring to make as full and careful presentation of the subject as possible. We were at once met with the conclusive objection on the part of one of the members of the committee that the bill which we proposed was not constitutional, because it provided for witnesses for the prosecution, but did not fully provide for witnesses for the defence, and that the defence would have the same right to call witnesses in its favor after it had accepted the witnesses on the part of the prosecution that it had before under the Constitution. The defendant, therefore, if he furnished other witnesses, would be placed in the position of attacking his own witnesses. This was, of course, ridiculous, and we were compelled at once to withdraw the bill from the committee. Subsequently, the attention of our committee was called to bills prepared in other States, notably Illinois and Minnesota. These bills provided for the appointment of expert witnesses by the presiding judge of the court. Those measures have all failed, and I confess to you that I feel very much discouraged with reference to this subject. I think it will be a very difficult problem

to solve; if solved at all, every constitutional right must be allowed to the prisoner.

This matter of having the expert witness qualified by the presiding judge is provided for in the Minnesota bill, and also in the bill just about to be introduced into our Legislature, and emanating from the committee of the Homœopathic Medical Society of the State of New York. This latter bill is almost an exact copy of the Minnesota bill, and provides that the party applying for such experts shall set forth the nature of the opinions required. The court or judge shall provisionally prepare a list of the names of such persons whom he may have reason to deem properly qualified, and shall cause such persons to be subpoenaed, due notice of the time and place being given to the opposing party. Upon his appearance, the expert shall be sworn and examined by the court and the counsel touching upon his qualifications as an expert. If the court, upon such examination, shall be satisfied that the person is properly qualified and free from bias, he shall appoint him as an expert in the case.

I contend that that provision is absolutely without good effect. While I have the greatest respect for the judiciary, I must say that I do not believe it is possible for any judge to make an appointment of this kind without a bias. When judges make nominations or appointments they are influenced, to a certain extent, in the same manner as other men are influenced in other relations in life.

Another proposition that has met with much favor in some quarters is that the experts shall be qualified beforehand through the Regents of the University in the same manner that medical practitioners are licensed to practise. I have in my possession a communication on that particular branch of the subject from the Honorable Robert Earle, who has been judge of the Court of Appeals for about twenty-five years. He takes this ground, and advocates this as by far the best solution of the problem. From the list so provided by the Regents the court is to select a number of experts. The defendant, of course, reserves the right to call other witnesses if he so desires. If this Society passes the resolution presented by Dr. Ransom, I think it will be doing well, but I do not expect to see this problem solved in the near future.

DR. CHARLES S. ALLEN, of Rensselaer, read the report of a malpractice suit involving the use of chloroform as an anæsthetic to assist in reduction of a dislocation, the patient expiring after reduction was effected. The result of the trial was adverse to the defendants; but, on appeal, a new trial was granted and the opinion of the court was read in full. The case was not one in which there was conflict of expert testimony, for three medical witnesses either declared they could not

state the cause of death, or that it was not caused by the use of chloroform or was caused by an atheromatous heart. In the opinion of the court the evidence on trial was not sufficient to show that death was caused from suffocation produced by an undue quantity or careless administration of chloroform, which was the material question.

DR. LANDON CARTER GRAY, of New York: We need no law, it seems to me, for it is perfectly competent for a lawyer on either side to examine into the qualifications of an expert. If he knows what these qualifications are he can demonstrate to the court whether or not a given individual possesses them. It is because of the defects of the lawyers that incompetent medical men are allowed to testify as experts.

I see defects in the law advocated in the paper. I have no faith in the judge as an appointing power. He thinks that the man who attends his family or goes to his club is a good enough man to testify in any case; he knows no distinction between surgery and medicine or the boundaries of the specialties. Then there are political and social influences weighing upon him; he is about the worst man in the community to select a set of experts. But if the bill provides that he shall select from a list submitted to him by the lawyers on either side, or from a list submitted to him by the Board of Regents, his powers for mischief are limited, and this would seem to be a good law to begin with. It sometimes happens that a young man who has been only a few years in practice locates in a place where no one else has taken up his special subject, and although he may not have practised it for five years, he may know a great deal more than any one else in his locality.

In some of our large cities, I am sorry to say, some of the professional brethren are nothing more or less than expert blackmailers. If not selected for one side, they will go to the other side, and serve without pay in order to teach the lawyer that did not engage them that they are dangerous foes. The proposed law would tend to restrain that very dangerous class of men.

DR. THOMAS DARLINGTON, of New York: I would ask Dr. Ransom if his standard of qualification would not shut off all general practitioners? It is conceivable that a general practitioner might possess better qualifications than the specialist. I would also ask if a general practitioner could qualify under five or six different heads?

DR. RANSOM: The proposed law would only shut out one who is not qualified. Any one can qualify, and in as many branches as he desires. At first it would not be practicable to be too stringent.

DR. E. B. ANGELL, of Rochester: I wish to speak on one phase not yet touched upon this afternoon. At the last meeting of the Cen-

tral New York Association, in Buffalo last autumn, this same subject came up for discussion, and occupied at least two hours. At my request, Tracy Becker, Esq., of Buffalo, who has given special attention to this subject, discussed it from the legal stand-point. He wrote to several prominent attorneys, and their letters in reply, which he read before the Association, were rather remarkable. The consensus of opinion among the judges and leading lawyers of this State was that no plan that had been proposed was feasible and could be pushed through the Legislature. Many of the judges said that they were unable to offer any suggestions to correct the evils of which they were aware. I believe that any committee that may be appointed to present this matter before the Legislature will have to get the co-operation of the judges and lawyers before any provision can be made to correct this.

. I also understand, from some prominent lawyers in this State, that it is going to be very difficult to get the lawyers generally to be in favor of any modification of the present method; they are opposed to it because it is going to cut them off from getting their clients out of difficulties under certain circumstances. As Dr. Gray well remarked, the law needs education more than medicine in this direction. We must work in connection with committees from other societies, and a great deal of work must be done before any law can be formulated that will be passed through this Legislature. The evil is so well recognized that a prominent attorney, before a club meeting in Buffalo, advocated entirely withdrawing opinion evidence from any court of law in the State of New York, contending that we should follow the precedent established in the English courts, wherein the hypothetical question is not allowed, and all evidence not of fact is eliminated from the case. When a prominent attorney, like this one, has reached that conclusion, it shows how much must be done in the matter of education before we can hope to have this fully corrected.

DR. RANSOM: I do not believe the medical profession of New York State must wait the action of the legal profession. Mr. Roger Foster, of New York, has been appointed a committee to confer with the committee from the Medico-Legal Society, the Homœopathic Society, and others. They came to the conclusion that the Minnesota bill presented the most desirable features, and that bill was reported favorably to the Bar Association at its last meeting. There was a very hot discussion, and it was finally referred to the Committee on Revision of Laws. The consensus of opinion among these lawyers seemed to be that there is, on the part of the learned portion of the legal profession, a determination to assist in this matter while recognizing all the difficulties mentioned. While there were, it is true, some dissenting opinions

here and there, we could not wait for a time when all will agree. The qualification feature, I think, is one which the medical profession can adopt, and can use as an entering wedge. We then put the legal profession in an attitude of defence.

II. THE PAST, PRESENT, AND PROSPECTIVE METHODS OF THE TREATMENT OF INSANITY IN THE STATE OF NEW YORK.

BY PETER M. WISE, M.D.,
PRESIDENT OF THE STATE COMMISSION IN LUNACY.
NEW YORK.

THE care and treatment of the insane for the past century in New York can be dismissed with a few words, as its record is historical, and is reviewed in the proceedings of this Society. For many years there was no public provision for these troublesome members of the community except in almshouses, workhouses, and jails; but in 1843 the enlightenment that was coincident with medical progress in other branches resulted in the State Lunatic Asylum at Utica.¹ It now seems incomprehensible that a symptom of disease as common as insanity, affecting at least one in four hundred of the population, should have received scarcely any attention from physicians and scientists. I cannot find that any medical school in the State gave special instruction upon this subject when the proportion of the insane reached one-third of one per cent. of the entire population. Even at the present time, when one of every two hundred of the community is insane, and when the insane diathesis so permeates society that we dare not estimate its extent numerically, in fear of scepticism, the schools dismiss the subject in almost a flippant manner. The treatment of insanity outside of hospitals until quite recent years depended upon the idiosyncrasy of the practitioner and expediency. There were no principles of treatment with reference to causes that have so largely governed the treatment of other diseases, but the gross manifestations were the controlling levers of remedies. During the last decade or two

¹ The first appropriation for the State Lunatic Asylum at Utica was granted by the Legislature in 1836, and it was first opened for patients in 1843. There was no further State provision for the insane until the opening of the Willard Asylum for the Insane (now the Willard State Hospital) in 1869. Then followed in rapid succession the Hudson River State Hospital, the Middletown Homœopathic State Hospital, and the Buffalo State Hospital.

there has been marked progress in attaining that conception by the public of the true nature of insanity, a better recognition from the schools, improved methods in public institutions, and, last and greatest, the consummation of a governmental policy of enlightened and humane care for all the dependent from this disease, which creates dependency more than any other. To-day there is no insane person in the State of New York in an almshouse or jail unless temporarily held for the State's custodian. It should thrill every one of you with the pride of statehood to know that this statement can be truthfully made only in New York; for while other States nominally have State care, they have not created the accommodations for all their insane. And what does this State care mean? Unfortunately, the insane from the nature of insanity become separated from society, and society forgets them. The insane person, although sick, is a burden and a care to the community physician, and soon drifts into the hospital specially arranged for him, and the physician remains ignorant of his further course unless there is a special motive for continued interest. Therefore, there is a great ignorance of the present status of the care and treatment of the insane by the State. It may surprise you to learn that less than 2 per cent. of the practising physicians of the State have crossed the threshold of any institution under the State hospital system, although a welcome hand would greet their coming from each or every one of the sixteen departments. But very few of those engaged in the study of nervous diseases know by observation what the State is doing to-day. And what is it doing?

It has established and maintains a uniform standard of care and treatment for the great mass of the insane who require the custody of institutions, and this standard is based upon a liberal interpretation of requirements as regards the necessities of life and medical observation and treatment. It is as rapidly as possible bringing the domiciliary needs of the insane to a like uniform standard, and has already provided accommodations for nineteen thousand of the twenty-one thousand insane in custody in a manner that receives the approval of those best fitted to judge in this and other countries; and with a continued support of the Legislature, in 1900 all of the insane in New York will be provided as they should be.

The very basis of the present system is its support of a proper standard—the best application of means to an end—the unity of a need and its fulfilment; the proper estimate of what is required

and what is not required, and of the reciprocal relation of the taxpayer and his duty. It is recognized that the foremost object of this, the greatest State charity, is the restoration of the insane to usefulness in society. The statistics of the past year show that nearly one thousand have been discharged from the State hospitals as recovered, and more than eight hundred as improved, in most instances to a degree that will permit them to occupy a useful position in the community. Aside from those institutions which have recently come into the State hospital system—the Manhattan and Long Island State Hospitals—27 per cent. of all original admissions, without regard to previous duration or the form of insanity, have been discharged recovered. And if from these admissions are deducted those who suffer from incurable forms of insanity and organic brain disease at the time of admission, over 60 per cent. recover.

That the hospitals are treating insanity in accord with our best present knowledge of its treatment can scarcely be gainsaid by the physician who carefully investigates the subject. The methods may briefly be stated as commencing at the home of the patient, where, upon notice of certification, the superintendent dispatches one or more nurses, and if necessary a physician, to transport the patient to the hospital. It is frequently necessary to determine whether the patient is physically able to withstand the fatigue of moving without serious results. In the rapidly exhaustive forms of the *vesanias*, life and recovery are sometimes jeopardized by unwise advice, and it would be as reasonable to move a patient approaching the crisis with pneumonia as one in the same period of hyperacute mania or melancholia.

It has not been an uncommon experience under former methods that death resulted from exhaustion soon after admission of the patient, but with the present practice these experiences have disappeared. Upon the admission of the patient, particularly if in the acute stage of disease, the initial examination is made and recorded, and the patient is at once placed under remedial conditions and provided with a trained nurse. The present practice in all the standard hospitals, as regards examination, care, treatment, and subsequent observation, substantially accords with the practice in general hospitals. There is no bodily organ, tissue, or excretion neglected. Cause is determined, if possible, and if it has an auto-origin, it is removed. It would astound those of you who are not

informed to see the mental improvement that frequently takes place in the patient suffering from a mind poison when that poison is removed. The transformation of the brawling drunkard to a sober-minded citizen within a few hours is not an unfair analogy. I hope I will not be considered presumptuous if I sound a note of warning to those practitioners who meet the insane in the incipient stage of their trouble. It should be known that insanity is frequently a self-limited disease, but that any check to the delicate nervous organism and the disturbance of the nutrition of the cellular elements acts as a poison, and acts with manifold more destructive effect in the pathological than in the physiological condition of the cells. The manifestations that call the physician are symptomatic only. Sedation and narcotism are the subduing of fire with oil mixed in the water. The preservation of household quiet has been the death-knell of many a victim, not by intent but by misdirection, and for this reason, almost wholly, is early removal to special facilities for the treatment of insane desirable. Another noticeable defect in the home treatment of the insane is the neglect of the excretory functions of the body. There is no symptom of disease in which appearances are more deceptive. It is a common experience of the hospitals to have a history of diarrhoea when the bowels are actually loaded, and incontinence with a bloated bladder. It is surprising, too, how small is the appreciation of the toxic effect of objective irritation through the special senses. This can be greatly removed, even at the home of the patient, when a knowledge of cause and effect controls the treatment. It is one of the chief means of treatment in hospitals, and the misnomer "moral" has no relation to the immorality of its defective application.

The present methods of the treatment of insanity in hospitals are founded upon the removal of active causes—toxins, either auto-, artificial, or objective—irritations of the nervous mechanism from all causes, the improvement of the general health, and the development of all bodily structure to a normal condition of resistance. No means are discouraged, in fact, no means are withheld that will attain this result. Even the governmental policy is based upon the datum that every patient cured relieves the State from maintaining one person for a period of twelve years, which is the average duration of insane life.

One of the beneficent results of enlightened treatment of the insane that is frequently overlooked is the condition of compara-

tive comfort of mental life that those who do not recover gain. The quiet of an asylum ward is now as noticeable as the pandemonium of former times, and this is not gained at the expense of the patient's health or comfort. It is the result of the individual study of cases and the treatment of symptoms by natural means. Instead of subduing the pathological activity of chronic mania with the strait-jacket or narcotics, it is not subdued, but diverted, whenever possible, to useful, or at least in non-destructive, channels. The depressed are placed under the most available counteracting environment, and the demented are stimulated by such mental action as will retard their progression to complete cerebro-mental deterioration.

The prospect before us is encouraging, notwithstanding the fact that insanity as a primal symptom of disease is gradually losing its favorable proportion to the degenerations affecting the brain in its terminal stages. Unfair criticism has been made of the present recovery rate in the insane hospitals as compared with that of half a century ago, without taking the character of admissions into consideration. Where recovery is logically impossible it is illogical to anticipate it. It is well recognized that in some forms of insanity, such as paralytic dementia, incurability is indelibly stamped upon the case at the outset of the alienation, and that the constitutional degeneracies are susceptible only of improvement and not of cure. The proportion of patients admitted to our hospitals at the present date whose insanity is the expression of a corrupt organism and incurable is far in excess of former times, and is progressing. The over-worked, over-stimulated, over-fed, immoral, and misguided are in greater excess than the proportion of those who succumb to intemperance of living formerly were. Resistance is weakening through heredity, and the weapons of attack are increasing. Consequently, what might properly be called the expectancy of curability is decreasing, even while the means thereto are improving.

Predictions in medical progress have no exactness, and are frequently incorrect, but in psychiatry the tendencies are sufficient as a basis for theorizing. The treatment of mind troubles will solve itself upon rational lines, and empiricism will hold no place in this important branch of medicine. Pathology and etiology will form the groundwork of therapeutics as precisely as in diseases of other organs. So-called functional insanity will lose its recognition, and

every clinical picture will represent a corresponding pathological one. Insanity as a morbid entity will have no existence in nosology, and the manifestations of a disordered mind, which we now recognize as insanity, will be appreciated as a symptomatic exhibit of disordered structure as dyspnoea is evident of pulmonary interference. The influence of extra-cerebral pathological states will receive due weight, and insanity will be treated as a syndrome of a general malady. It may be truly said that present methods anticipate this, but the physiology of mentalization and the pathology of mental disorders have not yet reached the degree that governs therapeutics. It may be predicted, however, with as much certainty of consummation as like results have been realized in the treatment of other bodily disorders.

The present system of State hospitals is based upon the co-operative plan. An experience that is purchased by an institution becomes the property of all of them. This perhaps may be better understood in the method of carrying on pathological work than in other departments. Formerly such pathological investigation as the hospitals maintained depended upon the efforts of individual hospitals, or, more properly speaking, upon the efforts of individual workers. This criticism applies as truly now to the general hospitals and to the school laboratories. Aside from the published records laboratory experiences are practically lost and energy is expended in going over and over preliminary work that might be used to good advantage in the progression of the fruits of valuable research under a proper system. The pathological work, and the same substantially applies to clinical experiences, is now established upon the co-operative plan. It is centred in one laboratory with allies in each hospital. Facts have a record, and are always available, not only by the so-called hospital ring, but to any inquiring physician. The latest technique is available to the medical officers, and the former difficulties that attended the laboratory work in hospitals have been largely removed. The mutual plan has received indorsements sufficient to justify its continuance. More interest has been taken in the progress of the experiment abroad than at home, and more encouragement lies in the fact that other countries and other States are moving in the same direction than in the hearty endorsement of men whose scientific achievements have made their names almost household words.

Recent discoveries of physiological psychology have given psychi-

aty a substantial impetus, and it is not unreasonable to assume that further discoveries, near at hand, will aid in no small degree in advancing the treatment of insanity. The difficulty of applying the pathology of the nervous elements to practical account in treatment has always been great, not only in psychiatry, but in neurology. The advantage of modern pathology is that it approaches nearer the border line of health and disease, and, instead of stopping at a demonstration of destroyed tissue it gives the process of change. Technical methods have only recently made this possible. This cannot be better illustrated than by the intra-cellular changes shown in fatigue, where the nutrient lymph of the cell is shown to be the barometer of its efficiency, or by the intra-cellular changes in alcoholism or other toxic conditions. Similar perversion, farther progressed, is now demonstrated in delirium and in hyperacute insanity, thus discriminating between destruction of texture and cell food. The nutrient properties of cell-function will, therefore, determine therapeutics, and at no distant day, however chimerical it may appear at the present moment, the functional properties of brain-cells and their disorders may be determined by mentalization and symptomatology as precisely as the pathological states of the grosser organs are now determined by physical signs. Psychology will resume a proper relation to the treatment of insanity and all the psychoses, upon a material basis perhaps; but it will not be relegated to metaphysics, as in the past. The border-line between insanity and alienation will constantly broaden as the relations of mind-symptoms to general disease will grow nearer in the appreciation of the general physician. Toward the consummation of this result the hospital system for the insane in this State is working, and every physician should give it the support of his influence, as he does other means for scientific progress and educational methods. The State hospitals are open to the profession of the State, and physicians are cordially welcome to derive any benefits that the hospitals can give them. In some parts of the State close relations already exist between the community physicians and the district hospital, and corresponding benefits accrue to both; but I am sorry to say that this condition is not general. When it becomes so, co-operation will extend to the treatment of this dreaded symptom of disease, and a greater discrimination will be shown in the determination of hospital cases. The mind symptoms of all diseases will receive the attention they deserve, and the artificial division of

professional work will cease to exist. The general physician treats the patient during the most important period, the incipient stage, and may be the strongest ally of the hospital physician. If the alliance is cemented in harmonious co-operation of work it will redound to the advantage of the patient and to the advancement of science.

But perhaps the most productive field in prospect is the relation of the medical practitioner to the prevention of insanity. In the development of children, the avocations of the matured, the con-nubial problem, and the most favorable conditions for the prevention of the patho-psychoses that lead ultimately to the insane hospitals, the general physician is placed where he can wield an almost incalculable power for good; and upon him must depend almost wholly whatever checks are exercised by society in the alarming destruction of nervous energy and resistance. He must have and will have at his disposal better defined laws of inherited defects, and better means of ascertaining them. The mysticism that has separated neuro-pathology and psychology from the physician at large will pass away like the morning fog, and leave clear to his understanding this mutual relation of body and mind in the sunlight of a near and better time.

DISCUSSION.

DR. LANDON CARTER GRAY: I think we may all agree with Dr. Wise in believing that the treatment of the insane in the hospitals of the State has undergone very great improvement, and we can thank our State officers for progress in that direction. In no sense of criticism, but only in a sense of meditation, would I like to have his opinion regarding certain inherent defects in the system which I am glad to have the opportunity to call attention to, and have him listen to, because of his official position. It is a significant fact that, in spite of all the millions spent by the State of New York on its insane hospitals, not a single text-book, or new discovery in pathology, or new method of treatment has come from any one of them, and yet all those things have come from gentlemen outside who are not interested in State hospitals. I say this in no spirit of invidious criticism; the reason, to my mind, lies in the inherent defect of the system of taking charge of the insane. If you or I want to study surgery or general medicine we go to a medical centre, and seek some hospital in that centre, pass a competitive examination, and go to the foot of

the list to wash sponges. We are advanced every six months until during the last six months we have charge of sixty or seventy beds. Even then we do not have full charge, because some distinguished teacher in medicine or surgery comes in every day to direct our treatment. We live, therefore, in an atmosphere of medical teaching; we get more in one month by contact with other minds than we get in isolated places in years. Precisely the reverse obtains in the treatment of the insane. The gentlemen who until recently applied for the positions of internes had no competitive examination; but through some influence they gained their positions. That is happily done away with, but even now they are isolated, and live by themselves in a place that is practically an insane boarding-house; they are deprived of all the stimulating influences coming from contact of minds in a medical centre. They do the best now that they can, nevertheless the system seems to be inherently defective.

I am no reformer, and I myself do not know how to meet the trouble; but it does seem that gentlemen in the position of Dr. Wise should direct all their official and personal power toward making use of the material in the hospitals for clinical teaching. Around New York City the material should be thrown open to every school in the city; we should be supplied with it, even though some little distance away; it should be a parental duty of the State to supply every clinic in the city that needs it with this material. It should be the duty of the State to encourage and make easy the visiting of competent men in that line. As a matter of course, neurology and psychiatry, as parts of general medicine, are of recent birth; they have come up within my lifetime. Twenty-five years ago, when I graduated, there was no neurology, and even to-day the neurology of the world is largely anatomical and pathological, and we are just beginning to study it clinically. I therefore speak with a strong desire to have an improvement in this direction.

DR. WISE: I will admit that some of the criticisms made by the last speaker have a basis, and cannot be denied; and that the hospital system in this State in many respects has been defective in the way pointed out. I deprecate what he said regarding what has come forth from the medical profession interested in hospitals. I must claim, contrary to his statement, that whatever we have to-day in psychiatry that is of real value has come from persons connected with institutions for the insane; and I must controvert his statement that no text-book or new discovery in pathology has issued from the State hospital system. The most recent text-book on insanity was written by a superintendent of a New York State hospital. There has been a great deal done that the profession at large is not acquainted with. I think the publication

now supported by the State hospitals—*The State Hospitals Bulletin*—has received the very hearty indorsement of the best pathologists and neurologists of whom I know; the tendencies are certainly in the right direction, and they could be further increased and improved if they received the hearty co-operation of the profession outside of the institutions. Of course, the insane hospitals are isolated, and they must be—this need not be discussed. Yet I believe, with Dr. Gray, that the material in these hospitals should be used for educational purposes. He referred to New York. I would say that the New York institutions have recently emerged from what is known as the municipal system, and although the conversion has commenced, it has not been completed. We are looking for better things, and this very question of clinical material has been considered in all of the institutions, and there is now on file a recommendation from the Commission in Lunacy that the material in these hospitals should be used to the fullest extent. The schools should be permitted to use it for educational purposes. I am sorry to say that this has not been done in New York, yet the effort of the commission has been to have it so. I maintain that the tendencies are in the right direction, and are toward higher and better things, and what we need now is the co-operation, support, and influence of the profession at large.

III. MEDICAL EDUCATION: THE STATE LICENSE TO PRACTISE MEDICINE.

By WILLIAM WARREN POTTER, M.D.,
BUFFALO.

INTRODUCTION.

BELIEVING that the members of the Society will be interested in an account of the work of its Examining Board from the beginning, and especially in knowing some of the difficulties that have been encountered in establishing and maintaining the present system, the following *résumé* of our work is submitted.

The first proposition of which there is evidence to separate the teaching and licensing powers in this State came from the medical faculty of the University of Buffalo, as the following minute, taken from the records of the college, will attest:

UNIVERSITY OF BUFFALO, MEDICAL DEPARTMENT,
February 2, 1864.

On motion of Prof. Charles A. Lee, seconded by Prof. James P. White it was

Resolved, That the Medical Society of the State of New York be requested to appoint a committee to consider the expediency of, and to report a plan for, the appointment of a State Board of Examiners for the degree of Doctor of Medicine, and to report at the next meeting of the Society.

Resolved, That the same committee be instructed to bring the subject before the next meeting of the American Medical Association, and that the delegates of this Society be instructed to urge the general adoption of the same plan in other States of the Union. Carried unanimously.

SANDFORD EASTMAN,
Dean of the Faculty.

THOMAS F. ROCHESTER,
Chairman.

The *Buffalo Medical Journal*, then edited by Dr. Julius F. Miner, a member of the college faculty, in its issue of February, 1864, commented on the suggestion as follows :

When the graduation of students of medicine is wholly separated from the duty of teaching, and an impartial Board of Examiners shall decide who shall and who shall not receive the degree of Doctor in Medicine, very much will be accomplished for the elevation and advancement of the profession. It is striking at the very root of a great evil, and will meet with opposition ; indeed, we have no doubt it will be overwhelmed in the almost unanimous opposition which it will meet from the various institutions now empowered to grant diplomas. . . . If this reform, now suggested and urged upon the profession by the medical college in Buffalo, is favored by the other colleges in the State, we shall soon be redeemed from the power and influence of a system which has disgraced the profession, lowered its standard of attainment, reflected obloquy and contempt upon its degree, and come well-nigh reducing medicine, as learned and practised, to the level of a trade.

The *Journal's* predictions were well founded, for the scheme failed, as it never went beyond the portals of this Society.

In 1883 the project was revived, this time also originating in Buffalo. The Medical Society of the County of Erie, at the instance of Dr. Henry Reed Hopkins, formulated a bill and sent it to this Society for approval and formal presentation to the Legislature. Here it was debated a year or two, and after amendment was finally offered to the Legislature. I need not recount the vicissitudes it therein encountered, for the circumstances are yet fresh in the minds of many here present.

After repeated defeats, the bill in amended form finally passed both houses, receiving the signature of the Governor, June, 1890. The law provided for three separate boards of medical examiners,

one to represent the Medical Society of the State of New York, one to represent the Homœopathic Medical Society of the State of New York, and one to represent the Eclectic Medical Society of the State of New York. Each of these societies was directed to send the names of fourteen or more of its members to the Regents of the University of the State of New York, from which the regents were directed to appoint a board of seven members representing each of these several societies.

The law further provided that these boards should organize for duty on or before September 1, 1891, the date when the act should go into effect.

ESTABLISHMENT OF STATE EXAMINING BOARD.

On March 11, 1891, the regents appointed to represent this Society as an examining board, in accordance with the law, the following-named examiners : for three years, Dr. William Warren Potter, of Buffalo ; Dr. William S. Ely, of Rochester, and Dr. Maurice J. Lewi, of Albany (now of New York) ; for two years, Dr. William C. Wey, of Elmira ; and Dr. George Ryerson Fowler, of Brooklyn ; for one year, Dr. Eugene Beach, of Gloversville, and Dr. J. P. Creveling, of Auburn. These names are here given in the order of their announcement by the regents.

The examiners met in the Capitol at Albany, September 1, 1891, and organized as a board by electing William C. Wey, President, and M. J. Lewi, Secretary. Dr. Lewi and Dr. Fowler were appointed members of the question committee. The law provided for examination in seven topics, and these were distributed among the examiners as follows : Anatomy, Dr. Ely ; physiology and hygiene, Dr. Wey ; chemistry, Dr. Lewi ; surgery, Dr. Fowler ; obstetrics, Dr. Potter ; pathology and diagnosis, Dr. Creveling ; therapeutics, practice of medicine, and materia medica, Dr. Beach.

EXEMPTION BILLS.

During the winter of 1891 the medical students throughout the State succeeded in persuading the Legislature to pass a bill exempting all who began the study of medicine before June 5, 1890, from the operations of its provisions. Under this amendment about 900 students were relieved of the State examination. The following year another attempt was made on the part of the students to procure further exemption from the provisions of the law ; but

this was not successful. However, the previous wholesale exemption bill deprived the board of the major part of its anticipated work for more than two years; for it was not until 1894 that our work really began to be effective. Many attempts have been made to so modify the law as to depreciate its effectiveness as a reform measure in medical education; and while in some instances they have almost succeeded, up to the present the original law is in practical force. It has been once or twice amended at the instance of the regents in order to make its provisions more harmonious and effective.

DANGEROUS AMENDMENTS PROPOSED.

Last year we had two narrow escapes. It is a well-known fact that the members of the New York State Medical Association, individually or collectively, opposed from the outset the present practice act; sometimes, indeed, theirs has been the principal antagonism, either to amendments calculated to strengthen it, or in proposing amendments that would weaken or emasculate it. The attempt was made during the legislative session of 1897 to so amend the law as to compel the regents to select one-half the examiners from that association. If a numerous array of its members at the hearing before the committee; if a forceful presentation of a false premise; or if lurid rhetoric, redolent metaphor, and abusive syntax ever deserved to succeed, it would seem as if their opportunity had come on the occasion referred to. The little coterie that defended the interests of this Society, however, were fortunate in appearing before a singularly intelligent committee, where it proved not difficult to again demonstrate that "thrice is he armed that hath his quarrel just."

It was, indeed, a fortunate escape, and the impression has been left behind that the attempt will be renewed, possibly this present year. Will this Society stand idly by and witness the consummation of such an outrage upon its vested rights—to say nothing of the violation of the proprieties of the occasion—as such an amendment would entail? If it would prevent it, a most thorough system of defence must be organized, and that speedily. The Legislative Committee must not be left to fight the battle alone; but a strong phalanx of able and active men, members of this Society, must attend at the capitol if summoned in an emergency.

We escaped another dilemma through a still narrower passage. In spite of the utmost watchfulness a bill passed both houses,

which in effect compelled the recognition of licenses of other States, no matter what their standards. It slipped through in the last days of the session, when bills may be passed without the ordinary scrutiny of a committee. Fortunately, however, Governor Black, recognizing the dangerous character of the measure, included it in his excellent veto list.

INTERSTATE INDORSEMENT.

This brings me to the consideration, for a moment, of the recognition of other State licenses. Undoubtedly it would be most desirable if all the State licenses were interchangeable or inter-indorsible, for then a licensee of one State could roam all over the country with a free lance. It so happens, however, though twenty-eight or more States grant licenses, that no two have in all respects an equal standard. Some of them merely visé a legal diploma; others examine only candidates who have no diplomas; still others require no preliminary education; while a few grant licenses only to those who give proof of preliminary education, three or four years of medical college teaching, and a diploma—to which latter class belongs New York.

To exchange courtesies by granting interstate indorsement of licenses to those from States where standards are lower than ours would be a manifest injustice—a discrimination against our own citizens.

As a remedy it has been proposed in certain quarters to abolish State examining boards and establish in their stead a national board; but a moment's thought will convince any reflecting mind of the impracticability, not to say impossibility, of carrying out such a scheme. The States will not surrender the right to make their own police regulations, nor will the general government deprive the States of their vested constitutional privileges.

UNIFORM STANDARDS.

The real remedy consists in establishing uniform standards of requirements in all the States. This should embrace the triad—preliminary education, medical collegiate training, and State examination for license. It would not, or at least ought not, to be difficult for the States to determine that a high-school diploma, or its equivalent, shall be the minimum of preliminary requirement; and that without this the schools shall not receive students. Colleges should then be required to establish four-years courses and finally

a State examination of uniform standard in all the States, no candidate to be admitted to it unless he presents a diploma from a school recognized as maintaining the proper preliminaries for graduation.

A national clearing-house made up of representatives from the several States could pass upon or visé the diplomas of such as desire to change States—such visé to entitle a diploma to registration in the State in which its holder desires to take up residence. While there are many opinions on this vexed question, most of which are made up from special cases of so-called hardship, there really remains but one solution of the problem based on equity, and that is for the several States to establish uniform standards of preliminaries, collegiate courses, and State examinations.

CRITICISM OF EXAMINATION.

The character of the examination imposed by the State has been a subject of criticism. One critic would ask simpler questions; another would make them more severe; still another says the questions are too bookish, or are not practical in character; yet another would institute a clinical or bedside examination in the hospital wards; while a fifth would have us divide the examination, making an undergraduate test at the end of two years in anatomy, physiology, and chemistry. It is easy to find fault, but difficult to attain the ideal. The fourth proposition is well-nigh absurd, because, first, it cannot be carried out; and, second, it is unnecessary. We are examiners, not teachers, and our province is simply to determine the nature and value of the instruction candidates have already received, and whether it adequately fits them to practise. These latter reasons would apply equally well to the proposition to divide the examinations.

It must not be forgotten that while our law provides for three examining boards, it also says their standards must be alike except as to therapeutics. In order to attain a common level, it has been found necessary to appoint a question committee consisting of two members from each board. This committee practically becomes a clearing-house, where all questions are scrutinized and finally made up into groups in each topic for the several examinations. It will thus be seen that an examiner is liable to find questions credited to his topic that he did not furnish, and, perhaps, to which he himself objects. This makes him apparently responsible for a group of questions at a given examination that, as a whole, he did

not propound—a condition of things that appears somewhat incongruous. Nevertheless, it serves to maintain a standard of uniformity in all the boards, and I venture to assert that in the main the questions of the New York boards take an average rank or standing with any propounded at the schools or by other examining boards.

FAVORABLE COMMENDATIONS.

On the whole, our examination is regarded by medical teachers of high standing, and by other State examining boards, as a post-graduate test of a creditable nature. Candidates, too, have almost invariably commended it for fairness, thoroughness, and excellence. The few that have complained have been imperfectly trained in the schools, and have not been properly equipped to practise medicine. Even many who have been rejected praise the quality and impartiality of the test. College teachers in general have become our strongest allies, and would not go back to the old way if they could. Permit me to quote a letter from a distinguished teacher, which is a type of many similar statements, verbally or in writing, made to me on this subject. The letter reads in part as follows :

The influence of the State examination upon our institution has been most beneficial. In proportion as the requirements have been increased in kind and numbers, we have had a larger attendance, as well as a better class of students. The advantages of teaching educated men, as compared with the more ignorant students of previous years, are apparent to every teacher, in that we are no longer required to condense and simplify our lectures, but we can go deeply into the subjects proper and do better and more advanced work. This is an advantage both to the student and the teacher, and is telling in the better class of graduates which we are able to turn out.

JOHN PARMENTER, M.D.,
Secretary Faculty, Medical Department,
University of Buffalo.

ITINERANT QUACKS.

While the present system is commendable in guarding the entrance doors to medicine, our laws or their administration are imperfect or inadequate to control or prevent itinerant quacks, Christian-science mountebanks, galvano-magnetic fakirs, and other illegal practitioners from preying upon an unwary public.

In the County of New York it is true that, under the vigilance of a splendidly organized medical society, many convictions have been secured, and a large sum in fines has been collected. Yet in the County of Erie not one prosecution has even been undertaken.

The prosecuting attorney of the county seems loath to proceed on the evidence furnished by the board of censors. Surely a law that is adequate to bring dismay to its violators in New York ought to be equally potent in Erie!

In Kentucky, where the law relating to medical education is much inferior to ours, it has been found stout enough to drive 1150 irregulars from the State, so that now it is not infested by a single illegal practitioner of medicine, nor can such regain a footing within its territory. The profession of the blue-grass State is to be congratulated upon this splendid record and upon the example it has set for other commonwealths.

It has always seemed to me that it would be a good plan if our college teachers would carefully inform their pupils as to the working of the practice law. Let them be told that the State examination is one of the proper safeguards erected by the States for the protection of the people against fraud and incompetency, and that the State license is a prize to be won in the race for professional standing, and not a *bête noir*—not something to be dreaded and to be resisted. We try to make our examinations fair and practicable, free from catch questions, and to represent a test that demands only such knowledge as any and every candidate ought to possess before offering his services in behalf of the sick or injured.

RESULTS ACCOMPLISHED.

It is interesting to observe what has been accomplished by the act creating State boards of medical examiners. In 1890 two years of collegiate training were sufficient to entitle a candidate to a degree. Nor were there any restrictions or regulations as to preliminary requirements—that entire question was left to the colleges themselves, and they generally looked with indifference upon an applicant's literary attainments, or want of such. Finally, there were no examinations for State license, hence each possessor of a legal medical diploma might offer his professional services to an unwary public.

On the other hand, the medical graduate of 1898 must at least be a good English scholar, must have had three or four years of college work, and must successfully pass the State board with a marking on each subject of 75 or more points.

Since September 1, 1891, the State boards have examined 3103 candidates, and have rejected 704, or 22.68 per cent. When it is

remembered that each one examined had already received the indorsement of the schools, it can easily be determined what is the significance of the work of the boards. But more than this: the colleges themselves have become more conservative. I know an instance in which a college faculty turned back twenty candidates in its class of '97. How many of these, think you, would have been refused diplomas in 1890?

A further factor to be taken into account is the rejection in the regents' office of a large number of informal applications for license from persons unable to meet the requirements. A conservative estimate of such applications and rejections, as shown by the records of the regents' office, would swell to at least 30 the percentage of the whole number of applicants that have failed to obtain the license of the State of New York to practise medicine.¹

When the Legislature can be persuaded to recognize no propositions to amend the present law that do not originate in this Society or the regents' office, and when it can be prevailed upon to so strengthen the statute as to suppress every illegal practitioner within the borders of the State, then can we truly feel that a great work has been accomplished, leaving the medical profession of the Empire State above suspicion and beyond reproach.

IV. WHAT SHALL THE STATE AND COUNTY DO FOR THE CONSUMPTIVE?

BY JOHN H. PRYOR, M.D.,
BUFFALO.

THE number of deaths from pulmonary tuberculosis reported to the State Board of Health for the last five years is as follows: 1893, 13,169; 1894, 12,804; 1895, 13,330; 1896, 13,257; 1897, 12,647.

In Buffalo, where efforts along modern lines have been made by the Board of Health, medical societies, and physicians generally, to prevent the spread of the disease since 1894, the number of deaths caused by pulmonary tuberculosis for the last five years is given below: 1893, 475; 1894, 500; 1895, 452; 1896, 413; 1897, 425.

¹ Regents' Examination Bulletin, November, 1897.

These figures are presented to show (1) the frightful loss of life and wealth due to this one disease; (2) the effect of the crusade in this State against an infectious disease; (3) the necessity for other measures to diminish the death-rate, prolong life, and reduce suffering. It will be observed that the loss of life for each year does not vary much. Approximately 13,000 succumb each year. Of course, the number suffering from the disease and incapacitated for work is very much larger. The number of deaths does not increase in proportion to the population, and the death-rate is constantly but slowly diminishing. The death-rate does not decrease relatively with other infectious diseases. Yet the number dying each year is decreasing in spite of the increase in population, and the danger from pulmonary tuberculosis becomes less each year. Whether this result has been caused to any large extent by special efforts to prevent infection, it is difficult to say. The facts seem to warrant the conclusion that the chief agency has been the improved sanitary conditions which have lowered the death-rate so remarkably in the last few years. Certainly the promise and hope of the enthusiasts have not been fulfilled, and expectation has been followed by doubt as to the efficiency of the present and praiseworthy plan to accomplish what accepted scientific facts would lead one to assume. Perhaps a more thorough and complete removal of the means of infection and disinfection of infected homes will secure better results in the course of time. Patients develop pulmonary tuberculosis when the most careful inquiry will not reveal the source of infection and about 13,000 deaths occur annually in spite of intelligent efforts to prevent communication. Only a combination of effective measures will diminish the ravages of pulmonary tuberculosis, and we are losing valuable time in trying new and disappointing remedies and depending upon new ideas of prevention to abolish tuberculosis and its high death-rate.

The present duty consists in increasing the effectiveness of prevention and doing much more for the victim of the disease. There is a tendency to regard consumption as an incurable disease, for which little can be done, and consequently the treatment of the consumptive, as a rule, is the most careless, unintelligent, and brutal which any patient receives. If the unfortunate has the means to procure the benefits of a change of climate and surrounding conditions, he may recover and escape the hardships of the disease and its management. But the proportion of well-to-do

consumptives is small, and the great majority belong to a class who either cannot receive the best chance for recovery, or become sooner or later dependent. It is this class of individuals, who are more or less dependent upon others for help, that I desire to consider when stating that much more can be done to diminish the death-rate, prolong life, and lessen distress. The poor consumptive rarely seeks assistance until the disease is incurable or the chance for recovery very slight. He struggles along until efforts at support are impossible and affliction confines him to his home, or aid is asked for in the form of medical treatment and maintenance in an institution. Recently the impropriety of sending consumptives to almshouses and general hospitals is being recognized, and the superiority of the special hospital and sanitarium appreciated. They should be established in every county or municipality where the number of consumptives makes it advisable.

The principal reasons for hurrying the adoption of this plan are (1) greater prospects of improvement and increased comfort; (2) removal from public places, the home or the institution, and thus avoiding the possibility of contamination. This enlightened method of disposing of the tubercular patient will be better for the individual and the public. The special hospital should be planned and conducted like the sanitarium, which has been so successful in Germany, and should be located and arranged to secure the following advantages: relatively pure air (sunlight), room for exercise when advisable. All facilities should be supplied for relieving or obviating discomfort, and open-air life, with proper nutritious diet, insisted upon. The consumptive should be treated as a sick man whose distressing symptoms can be largely prevented, and whose improvement depends upon a broad view of many encouraging influences. No special hospital for consumptives should be established in connection with an almshouse. The influence is bad, and the curse of petty politics and ignorant management is almost sure to destroy or limit its usefulness. Buffalo has lately supplied an example which should teach a lesson. A hospital for consumptives has been erected and placed under the management of the almshouse keeper and supervisors. It is a model of its kind, and well designed to fulfil its purpose, but the apathy of the medical staff and the ignorance and neglect of duty on the part of its management have combined to make this necessary institution almost exactly what advanced ideas are leading us to avoid.

Boards of health should encourage sanitarium treatment, and wherever possible direct that consumptives be sent to special hospitals. Practically the only objection to this action might come from those interested in clinical material or hospitals which are larger than the sick poor require. Certain results cannot be expected or claimed for these special hospitals, because two essentials may not be possible, viz., the most beneficial climate and complete change of surrounding conditions. They will be resorted to mostly by late or unpromising cases, and every effort may prove unavailing to promote recovery or improvement in a variable percentage of such cases. This brings me to a consideration of the duty of the State and the proposal of a plan necessary and practical. It takes cognizance of the important elements in the crusade against pulmonary tuberculosis, and is in accordance with clinical knowledge and humane and economic laws. There is a time in the large proportion of cases of pulmonary tuberculosis when a change of climate and proper care and environment will prove curative. The well-to-do take advantage of this only opportunity, and consequently it has been demonstrated that life may be saved or prolonged if the sufferers can obtain the costly remedy. The chief reason why about 13,000 consumptives die annually in this State is that the great majority have not the means to obtain the only promising relief, and charity has failed to supply it. Thousands have died, and continue to die annually, simply because they are poor. The few may recover, but the many must perish, because no rational or scientific method of assistance has been provided by the State. Provision has been made for the relief of those suffering from other diseases. But misguided philanthropy or misdirected charity disregards the real needs of the consumptive, while spending money to little purpose, and unnecessarily pauperizing. The care of the incurable consumptive is improving, but the manner of neglecting or aiding the poor patient with incipient tuberculosis is an anomaly in our system of charities, and is opposed to all proper ideas of science and economy. Three great truths have been added to our knowledge of pulmonary tuberculosis: (1) the accuracy of the means for making an early diagnosis; (2) the knowledge of the dangers and methods of prevention from infection; (3) that certain conditions not thoroughly understood are favorable to recovery.

What benefit does the poor consumptive derive from this knowledge? (1) Certainty that he has a lingering and fatal disease; (2)

the duty of guarding against similar suffering on the part of others, greater difficulty in finding employment, and appreciation that he is dangerous to the community; (3) the sad realization that the only hope is denied him, because he belongs to that neglected class of unfortunates to whose true interest all seem cruelly and woefully blind. The carelessness on his behalf becomes all the more apparent and blameworthy, in view of the fact that a suitable site for promoting recovery can be found in this State, probably on land owned by the State. I refer to the Adirondack region. Opinions may differ in regard to the relative value of different localities as a resort for consumptives, but experience has shown that the Adirondack region is highly beneficial. From 25 per cent. to 35 per cent. recover. The progress of the disease is checked in a much larger percentage, and life is prolonged in almost every instance.

The results to be obtained anywhere depend mostly upon the care and intelligence with which cases are selected. The statement seems conservative that at least 35 per cent. of the poor consumptives who are condemned to long suffering and death could be saved to-day if a proper place for their care were established in the Adirondack Mountains. This estimate allows for neglect to make the earliest possible diagnosis and lack of discrimination. If the disease is recognized early, viz., before systemic disturbance appears, the general condition slightly impaired, mixed infection not yet present, and the extent of invasion slight, the percentage should be considerably higher. Often the poor patients are the most promising, because they have resisting power, and no vicious inherited taints. They should be given the opportunity to regain health where nature can accomplish more than the physician. A colony for incipient consumptives should be established in the Adirondacks on land owned by the State if the State tract contains a suitable site for that purpose. Its purpose should be confined exclusively to the care of promising cases of incipient pulmonary tuberculosis. It should not be an institution for temporary relief or a home for incurables. The object should be to cure or check the progress of the disease, and patients should be compelled to remain until sufficient time has elapsed to secure a result. Patients able to pay all or a part of the cost of maintenance should be allowed to do so, and thus many could take advantage of a wise provision of charity who could ill afford long-

continued expenditure. Naturally, objections to such a plan may be expected, and the usual forms may be briefly cited. The scheme is vast, and the expense will be great. Another expensive institution must be supported by taxation, and will the results warrant the outlay? The individual will be taken from his home, become non-supporting, and, even if much improved, may not be able to return or remain. In answering these questions there is no necessity for wasting time over crude ideas relating to the doctrine of survival of the fittest as applied to human beings. The State, county, and municipality provide for the afflicted in some way when necessary, and a large part of the money expended annually for relief is now foolishly wasted, because the manner of dealing with the consumptive is antiquated and stupid. He is allowed to suffer and die, when he might be saved, and to a loss of a life is added the cost of maintenance, and often poor relief for the dependants. If he is to be cared for anywhere, why not use the money wisely and place him where something may be realized? At present he is a dependant until he is dead; why not make him a dependant until he is well or sufficiently recovered to be of some benefit to the community?

You will perceive that the expense would be practically the same, but shifted and wisely employed to care for the unfortunate where some known result may be obtained. The scheme is vast, because the problem is a big one, and has become so through negligence and false methods. The development and growth of such a colony would necessarily be slow, and the increase in expenditure gradual. Furthermore, consumption is on the decline in this State, and the plan advised would assist in checking its spread and diminishing the death-rate. The question, Will the result justify the expenditure? has been answered from the medical stand-point. The cost per patient will vary with the length of stay. If we assume that eighteen months will be the average time under treatment, the expense need not exceed \$250, and the value of a human life to the State would seem to make the experiment worth a trial. There is certainly as good a prospect for value received as that furnished by the expense incurred for the support of the mentally defective and incompetent, victims of vicious habits and bad environments. Whether the cured or improved consumptive could safely return and live a useful life at his home is rather unimportant, in view of the fact that one usually prefers health and life somewhere to illness

or death at a place called home. An attempt consistent with brevity has been made to show that the present method of dealing with the consumptive is wrong and inefficient. He is denied the proper relief to which he is justly entitled. In my opinion the State should supply the opportunity required, and attack the dread disease, consumption, in a rational and enlightened manner. The problem is too large for private charity, and the duty belongs to the State. The proposed plan is promising and an advance over obsolete methods. Perhaps consideration and discussion may result in suggestions of greater value, but the importance of devising and adopting some improved methods for combating the terrible effects of pulmonary consumption should attract attention and stimulate determined action. The endeavor to prevent has so far proved disappointing. Education and continued effort will accomplish much in this way. Better care and treatment will be given the incurable. But the great and promising project must be in the direction of helping the consumptive in the early stage of the disease.

V. THE WOULD-BE RIVALS OF THE PHYSICIAN IN PRACTICE.

BY REYNOLD W. WILCOX, M.D., LL.D.,
NEW YORK.

WHEN the metropolitan profession is being agitated over the dispensary and hospital abuse, and our country brethren are disturbed by the descent of the city physician upon the various summer resorts—and he generally becomes more eminent the further he gets from his hearthstone—it may seem trifling to take up the time of this Society with a brief presentation of our would-be rivals in practice. Yet it has been brought each year more forcibly to mind that the proper field of the physician is being gradually usurped to a greater and greater extent by those whose pretensions are only equalled by their audacity. I have no intention of discussing the evils within the profession, the pauperization of the masses, for which we are in large measure responsible, the specialism, pseudo-specialism, and the faddism which we often unwittingly encourage, or the tendencies toward trade methods, which we as a class ignore, but rather the illegitimate rivals, or, preferably, the parasites

which fatten upon us and at the same time are sources of irritation to every thoughtful physician. Nor shall I consider the Christian scientists, whom the theologians declare are not Christian, and whom we know are not scientists, nor the faith-curists, who are unusually successful in curing their dupes of faith, nor the mind-curists, who are named *lux a non lucendo*, because neither operator nor victim possesses any mind.

The laws of our State prevent those grossly incompetent from openly exercising the functions of the physician. On their execution there is much upon which we may congratulate ourselves. Thanks to the energetic work of this Society, the portals of medical practice are properly guarded. We could wish that the requirements were more rigid, the medical course longer and more thorough, and the preparatory education upon a higher plane and the entrance examinations more rigorous; but in comparison with the past the outlook is hopeful.

It seems to be a national weakness of ours that we desire a title, and failing in its attainment some are content with an epithet: such is the "Doc.," which apparently satisfies the druggist. "Prescribing druggists" have been the theme of countless diatribes, and their number never seems to diminish. The popular opinion appears to be that the man who sells drugs is perfectly competent to direct their use. The public are of the opinion that he knows the "what," little realizing that the "how much" and "when," which are entirely beyond his knowledge, are of quite as much importance. So long as this opinion prevails the corner dispenser of morning pick-me-ups, purveyor of cigars and proprietary medicines, with prescription annex, will have his liver-persuader, pectoral-balsam, female-regulator, and dyspepsia-knockouts. Nor can we altogether blame him, for he is not in business for his health any more than are the legislators at present in this city. We ourselves are partly responsible, for when the druggist knows that physicians prescribe the various hypophosphite preparations, tonic compounds, and trade-marked shotgun concatenations, of which they know little and can guess less, he sees no harm in joining in the riddle. This evil will probably never be checked; but it is time to call a halt on barefaced counter-prescribing, such as selling two ounces of creosote to an ignorant woman who wanted something to rub on a painful shoulder. A severe burn of large dimensions followed, and the druggist when called to account could not be

made to see anything wrong in his conduct. Nor have I discovered any method of checking the indiscriminate repetition of prescriptions. One druggist told me that he thought that the "*Non-repetatur*" at the bottom of my prescription was some medical motto, and the injunction "This prescription must not be repeated without my written order," stamped in red ink across the face of the prescription, was observed by less than a dozen druggists in the city of New York.

My own practice now is to supply all prescriptions containing opiates, chloral derivations, and powerful drugs from my private stock, and so disguised that no apothecary is likely to ascertain what they are. Probably the cleverest trick, and one that has been very disagreeably brought to my notice, is the putting up of a prescription, with label, which has been regularly prescribed for a patient by a physician, and vending the same at an exorbitant price to any chance comer; when it is confidently stated that this is Professor ——'s remedy for malaria, and of which his patients all speak well, the affair is complete. But if the victim is not relieved and visits the writer denouncing the remedy, the surprise of the physician in having attributed to him a cure of which he himself was guiltless, is only equalled by the audacity with which his brains are made use of.

It is a hopeless task to educate the public: it is fully satisfied with the ecboic department of the religious press, the seductive advertisements in the street cars, and the tommy-rot of the Doctor's Column of the *Daily Yellow Liar*. It would be equally unsatisfactory if, as is generally recommended, the physician should dispense his medicines. He would quite likely degenerate into a tablet triturate fiend and give No. 631 X. and R., forgetting of what it is composed. For all that some manufacturers have tried to think for the practitioner by naming their products as disease or symptom-remedies, they are not so constructed that their attempts at thinking can result in other than confusion to the physician and dissatisfaction to the patient. When the retail druggist thinks, the results are likely to be peculiar: the substitution of oleum rusci for oleum betulæ volatile in a mixture intended for internal use, and the very latest powdered althæa for taka-diastræ, "but he knew althæa was harmless, and he had never heard of taka-diastræ." On writing a prescription containing a small amount of apomorphine in the treatment of certain forms of bronchitis, I always add

tincture of sanguinaria to prevent the druggist from assuring the patient that "It is an excellent emetic."

The remedy for all this lies with the physician. When his encouragement is sufficient that a pharmacy can be maintained for the filling of prescriptions, for their original owner only, without repetitions, and that each shall possess a *Pharmacopœia*, which most of them do not, and there shall be no vending of notions, patent medicines, and no counter-prescribing, then and not before will pharmacy take its proper place and become an efficient aid to the science and art of healing. Druggists and the "Docs" of the corner will then be as extinct as the dodo. As matters now are the physician of six prescriptions is the one popular with the druggist, for he knows that as No. 6 is reached No. 1 is shortly due.

The druggist complains that we oblige him to carry an unnecessarily large stock. This is undoubtedly true, and our time is wasted in argument whether malt in a short fat bottle is better or worse than in a tall slim bottle, for probably both are equally useless excepting as bad beers.

At present the average druggist is a stumbling-block of no mean dimensions to therapeutic progress. This would be reduced if he would keep in stock even the official drugs, many of which are obtained with great difficulty. Whether a properly conducted pharmacy would be profitable or not, I cannot say, for I have never known of the experiment being tried.

The surgeons complain that the same state of affairs obtains with the instrument and appliance makers; that the making of an instrument or appliance confers a knowledge of its use. It is probable that the abuse is not so widespread as with druggists, and is chiefly limited to the truss-makers. These have frequently found to their sorrow that trusses fail to give relief when the pad is applied over a bubo or an undescended testicle. Yet many physicians, and occasionally the surgeons, deem the maker or even a druggist a proper person to apply the instrument, as a few instances which have come under my personal observation prove. That this habit is fairly widespread among physicians is evident, as has been shown by the circulars which have been received on several occasions, offering a commission upon all apparatus supplied by the manufacturer.

The contest with the refracting opticians is too recent to admit of additional statement. The success of the battle in the Legislature shows that the public generally are not inclined to give to the

glass-grinder the privilege of treating diseases of the eye, nor to others of similar trades which claim equal qualifications—the microscopic and photographic lens manufacturer.

The audacity of these people may be inferred from the statement of one of that class of artisans who recently assured me that he could find the correct glass for any case of mixed astigmatism in five minutes. Here the remedy is the same as for druggists: patronize no optician who prescribes glasses or sells them without a prescription from an oculist. Incidentally, it should be observed that the financial arrangement between opticians and oculists should be discontinued to the benefit of both parties.

The Pedic Society claim the right, I believe, to perform all operations and apply treatment to the feet. Just how far their powers, as defined by legislative enactment, may go, I know not; but their claims tread upon the rights of the general and orthopedic surgeon so far as concerns diseases and injuries of bones, cartilages, and muscles, which precludes their giving attention to bunions; while the skin and nails are within the province of the dermatologists, and this restrains their activity as regards corns and ingrowing nails. Whether they will be content with the application of plasters, or wish to cover the whole field, is not apparent; but if the latter, œdema of the feet will attract their attention, and by an easy step they will advance to the treatment of diseases of the heart, liver, and kidneys, thus directly competing with the physician. The remedy appears to be simple. The unoccupied would-be surgeon can erect a new specialty, and pedic surgeons will doubtless find plenty of employment, if only in demonstrating to the public that pedic differs from orthopedic—straight pedic surgery.

The barbers occasionally afford instances of the abuse of their occupations, aside from the vending of their depilatories, dyes, and hair restorers. An instance recently came under my observation of a young girl who consulted me for an ailment of the digestive system. She called my attention to a small patch of inflammation on the forehead at the edge of her hair. Presumably there had existed a seborrhœa, which had been regularly treated by a barber for several months by application, so far as I could judge from her description, of solution of iodine and silver nitrate. On assuring her that if it was let alone it would get well, she departed. On her return two weeks later the inflammation had disappeared.

An amusing instance of the shoemaker not sticking to his last

was found in the person of a man who complained of strangury, bloody urine, and painful erections, for which no physical cause could be found. Investigation, however, showed that a bald area upon his head had been treated by a barber with vigorous inunctions of his "capillary embrocation," with the result that the said area was well blistered. A cessation of the barber's treatment was followed by relief of the symptoms. The supposition is that the "embrocation" contained cantharides.

For years it has apparently been the custom for bath attendants to prescribe for all sorts and conditions of ill health. Many establishments advertise the removal of superfluous hair by electrolysis; of late, since the Schott-Nauheim treatment for heart disease has been vulgarized, we find rubbers of high and low degree alike recounting the wonderful results accruing from the giving of saline carbonated baths and the application of resistive gymnastics. How far they carry out these upon their own responsibility it is not easy to say, but since most of them profess acquaintance with an English pot-boiler, it is likely that some patients are not treated under a physician's direction. One instance has come under my observation. The book in question deserves severe condemnation for its general inaccuracy and positive untruthfulness. The author claims that some of the alleged illustrations were printed upside down; it is charitable to suppose that the text met the same fate. Sooner or later some one will die under treatment, and an indictment for manslaughter will determine how far the physician's rights are encroached upon.

Trained and untrained nurses are frequent offenders in the way of prescribing, not for the person whom they are waiting upon, but generally for other members of the family. It is by no means uncommon to find that several members of the family are taking medicines upon the recommendations of the nurse. Some of these are patent, some are simple—generally remarkably simple, and, therefore, adapted to those who take the wisdom of nurses for gospel—and occasionally some prescription "which has cured me of the trouble you have." The best way to deal with these offenders is to admonish them, and in case of failure to procure their discharge. One point deserves attention: never allow nurses to talk of "their patient." Warn them at once that physicians only have patients, and that nurses are merely to obey the orders which they receive from them.

Bartenders have some reason, but no excuse, for practising medicine. Since they dispense poisons I presume they feel obliged to administer antidotes. The various bitters, malaria cures, and dyspepsia mixtures to be found in bar-rooms are not so objectionable, if chloral and various coal-tar products could be kept out.

The worst offenders against decency and law are the midwives. If a coroner in the City of New York is to be believed, the majority of them are midwives only in name, and infanticide, fœticide, and murder can be justly charged against them. Under the existing laws there is no pretence of ascertaining the qualifications of these persons, and their legitimate work should be limited. When we take into consideration the large number of junior physicians who are willing to work for the same fees as do the midwives, and who would value the experience gained, there seems to be no reason for the perpetuation of what has become a crying evil. Besides this, many labors in case of the very poor, could be utilized for the instruction of undergraduate medical students, under proper supervision, thus benefiting both students and patient. If the plea is made that this would throw out of employment a worthy class of women, the reply could be made that a superfluous vocation is abolished, and those engaged in it could become scrub-women, for which there is always a demand. The few midwives whom I have met, and that was during my residence in hospitals, were apparently only fitted for that somewhat laborious but certainly honest employment.

It is a curious fact, but I have never known of a veterinary surgeon prescribing for human beings, yet they are far better qualified than any of these previously enumerated.

I have not touched upon the illegal and brazen-faced encroachment of local boards of health upon the province of the physician, for this subject demands far more time than can be spared in this paper. (See Greanelle, *New York Medical Record*, December 25, 1897.)

Their carrying out gratuitous vaccination, compulsory inspection of school children, segregation of patients afflicted with diseases assumed to be contagious, engaging in the manufacture and sale of vaccine and antitoxins, call for something more than a protest. The height of their impudence is their receiving an appropriation of public money for the printing and distribution of their defence. Pseudo-science is no less harmful when disseminated by the boards

of health than by an individual, and much that has emanated from them would have received speedy and severe condemnation had it not been labelled as official.

The evils of which we may justly complain are of long standing and deeply seated. They undoubtedly arise partly from the desire of unqualified persons to assume knowledge which they do not possess, and therefore are willing to take risks which physicians would not venture, and partly from the ignorance of the public. It is useless to attempt to punish interlopers by process of law, for that is too tedious and altogether uncertain. Beside, any effort in that direction always excites the sympathy of the public, who are content with inferior products, and who always take the side of those whom they deem to be persecuted. The public are beyond the possibility of education in medical matters. As Dr. Samuel Johnson said more than one hundred years ago: "The uncivilized in all countries have patience proportionate to their unskilfulness, and are content to attain their end by very tedious methods." (*Western Islands*.)

To-day it is evident that the general public are, so far as medical matters are concerned, entirely uncivilized in that they prefer those who pretend, to those who possess, scientific knowledge. The advancement of medical science comes only from the self-denial and devotion of the profession. On the part of the public there is no demand for the educated physician, for it is quite content with the pretence of the ignorant. The crowning honor of our profession lies in the fact that it is the only one which has raised its standard far above that demanded by the people and has maintained this position unaided by those who profit from its high position.

VI. THE HYGIENIC MANAGEMENT OF DAIRIES.

BY E. F. BRUSH, M.D.,
MOUNT VERNON.

MRS. O'LEARY kept a cow in Chicago; the cow kicked over a lighted lantern, and all the world knows the damage that was caused by Mrs. O'Leary's cow. But how many cows there are, all over the land, causing destruction to life, and none of the afflicted even knows who keeps the cow, or that she was the cause. If every

one who uses milk or gives it to the baby knew who kept the cow, and how she was kept, and all the danger that lurks about a cow that is bred wrong, kept with dirt, carelessness, and ignorance, Mrs. O'Leary's cow would be a unique specimen of the dairy breed with a record for destruction. Just suggest the dairy to the everyday urban citizen, and his imagination conjures up the fair and buxom milkmaid, the foaming pail, the breath of the sweet-smelling kine, luscious cream for his oatmeal and strawberries, golden pats of butter, and bountiful, innocent sweetness, milk and honey.

It may be owing to this sentimental idea of the dairy that so many of us take kindly to raw milk, while at the same time we have an abhorrence at the thought even of eating raw meat from the same animal; and actually the dangers of contagion, disease, and impurities are far greater with the milk than the meat. Few people, I believe, realize all the danger associated with the milk supply of cities. Milk that is dangerous and may be deadly poisonous looks just as innocent, innocuous, and deliciously nourishing as the fluid that is so in truth.

In many of the dairies supplying milk for food, nearly everything is either totally wrong, or not just right to produce a wholesome product. It is well known that the dairy cow is subject to numerous grave diseases, and many of her maladies are, we know, the same as those that afflict the human race, and any disease in the cow affects her milk perniciously.

Every one who gives attention to current literature on the subject must know that there are several articles of absolutely refuse material that are used as food for the dairy cow, and she is expected to give in return one of the highest types of food for human use.

The cow is necessarily a delicate creature. What condition can be imagined except actual disease that is more opposed to robustness, vigor, and hardihood to withstand the shock of cruelty, bad food, and dirty surroundings than maternity and lactation? The cow, while giving us milk almost constantly, at the same time sustains a foetus; and so it is only reasonable to affirm that the dairy cow must receive solicitous attention, gentle treatment, and absolute cleanliness in her surroundings and feeding, if we are to expect her to give us milk fit for human food, because it was long ago discovered that if the mother suffered the nursling was afflicted sometimes with death.

But, unfortunately, it is the exception to find a dairy where the

cows are treated kindly, fed or housed cleanly ; and at the present time health authorities appear to recognize nothing but tuberculosis as the sum total of all the disease and danger in the dairy. The sources of possible contamination that surround the milk after it is drawn from the cow are many and serious on the majority of dairy farms as they are conducted at the present time ; and it is to this part of the hygiene of the dairy that I wish particularly to call your attention now, because this branch of the subject receives everywhere less attention than it seriously deserves, and I believe that when we are able to exclude the disease and disturbance that arise from milk contamination in the dairy outside the cow we will be better able to trace some of the epidemics that come directly from the animal herself.

Until all the dangers of the dairy are recognized, many of the more grave and menacing ills cannot be remedied. We must remember, in considering milk, that there is no other article of food just like this. There is no food, fluid or solid, that presents so many favorable conditions to take up some of the tangible material of disease, preserve and multiply it, and get it where it does the most harm in a very short time. Of course, a certain degree of heat will disinfect milk of its bacterial condition, but the toxins in milk are not eliminated by heat.

We are constantly searching for a specific remedy for scarlet fever, diphtheria, and other fatal diseases of childhood, and very often allowing the seeds of these diseases to be served to our children in their milk. Many of the diseases of infancy can be lessened or entirely abolished by proper hygiene in the dairy, and I believe that the achievement of success in this line is being delayed by the futile efforts of well-meaning physicians who imagine that they are correcting the evils of a bad milk supply by modifying, Pasteurizing, sterilizing, adding animal and chemical compounds, and otherwise changing the character of milk that may be bad or may be good, because it can all be made good in the dairy, but not in the laboratory.

The Chicago cow was a bad-tempered animal ; she and the lantern came too close together, hence the calamity. How many cows and their product, milk, form a junction with elements of danger, followed by dire results, and the cause and effect are never discovered ? Clustered around every dairy is a multitude of dangers—dangers, unfortunately, that are not always appreciated or

avoided, and hence culminate. There are many other animals around the dairy beside the cow that menace the dairy product, often as seriously as a diseased milker herself. Horses, dogs, cats, rats, mice, and fowls undoubtedly are often the direct means of infecting milk, and thus passing contagion along to the human race.

The horse is subject to many diseases, and we know that glanders as it occurs in this animal is highly contagious, and is communicable to the human race. We also know that the affection commonly called "grease," an inflammatory disease usually confined to the heels of horses and not always a serious malady, is the primary cause of cowpox, and there are few conditions that are more loathsome than an epidemic of cowpox in a milking herd, as I have seen it; the pus-serum and broken-down tissues from the large ulcers on the dugs will get into the milk-pail. What, if any, specific condition this will generate in the infant who gets such milk, is not known, but surely milk thus contaminated must make bad food. Cowpox can be avoided by not allowing men who milk the cows to handle horses.

Cats loll and purr around the dairy all the day, and it is a very common thing to see a wheezy old cat lapping warm milk from the pail or other milk container. These animals are known to succumb to a throat trouble that appears identical with human diphtheria, and it is also known that they die from many tubercular forms of disease. So it is not unreasonable to ascribe contagion to these animals when they are allowed the freedom of the dairy. Dogs prowl about the farm day and night, and these animals very often depend on the carcasses of dead animals around the neighborhood for their living. Cows, horses, and pigs often die of septic and contagious diseases; these dead carcasses are hauled into the woods or fields, away from the house, and there left exposed as meat for the farmer's dogs. These dogs come back and lap the milk from the pail, lick the empty milk vessels that are never properly cleaned; and can there be doubt that the milk is thus infected?

Where this danger exists in a dairy it is practically unlimited. Rats and mice infest the ordinary dairy; they get into the milk and the milk vessels. These animals have their diseases also; therefore the element of danger and disease from these pests must be acknowledged.

The poultry around the farm are sometimes very numerous, and not always healthy. When we consider the great susceptibility of milk to take up contagions, the fear of these animals in the dairy is not fanciful. The diseases that they are subject to are many, and owing to their high normal bodily temperature (108° F.) there is no animal that takes on tubercular affection more readily or that dies quicker from this disease than poultry. On some dairy farms the hens are everywhere—in the cow-stable, in the milk-house, in the dwelling-house, and in the milk-pail. When they are not sick they are dirty, and when they are sick, positively dangerous.

The dairy that is conducted without a due appreciation of these dangers is not observing all the necessary laws of hygiene.

The dairy farmer, as a rule, has a family of children, who are often attacked with the grave diseases of childhood. The milking vessels are often washed in the house, and not unusually there is a close connection between the living-house and the dairy, and very often the living-house is itself used as a dairy; so it needs no argument to point out the danger here. In fact, numerous epidemics have been traced to this source.

The men who milk the cows are not always free from disease; often we see the milker with hands that have cracks or sores. One of the dirtiest habits that exist in many dairies is that of wetting a cow's teats to lubricate them and make the milking process easier to the milker. This is not rare, unfortunately, but the most common nasty habit that is permitted in many dairies. If it were not for the good that is sure to follow the agitation of these matters, I should hesitate to record that I have myself seen milkers spit on their hands to wet the teats before they had the milk in the pail; and then, when they had milk in the pail, dip their dirty hands into that, and keep the teats dripping wet during the whole process of milking. Cow's teats should not be wetted in any manner, especially in winter, even to wash off dirt, if it is there. This should be removed with a brush or a dry towel. Wetting of the dugs very often leads to chapping, and chapping to cracks, and these cracks often become running sores from the constant irritation of the milker.

In this day of bottled milk the danger of spreading contagion is vastly increased. Bottles that go into rooms where children are suffering from any of the contagious diseases must be a source of

danger if they are not subsequently sterilized. Quite recently I had occasion to visit a man who did a large bottled-milk business in New York City. The milk came in wagons from the upper part of Westchester County, and he had a horse-stable half-way between his source of supply and New York. Here his horses were changed. All the milk came to this stable in cans, and the empty bottles came back here from New York to be washed. He had two wooden troughs in this stable, and a stove with a large kettle to heat water, and the bottles were washed here in lukewarm water with sal soda, rinsed in cold water, and then filled from the cans.

I thought if some of us followed these bottles around, and had seen where some had been, we would want them pretty well steamed and sterilized before we drank milk from them. It is often a source of wonderment to me why we do not have more direct and palpable evidence of trouble arising from just this state of affairs. Of course, trouble does come from this sort of carelessness; but how much or how little, we are not always able to say. But we ought to be able to prevent it by insisting that all milk containers be sterilized with steam under pressure after each usage.

When these dangers are recognized and eliminated from the dairy, then it only requires that the cows be healthy, properly fed and cared for, in order that we may have milk fit to drink and feed the baby, without the intervention of the chemist or any of the prevailing laboratory methods that are at the best only questionable makeshifts.

VII. THE MUNICIPAL CONTROL OF MILK-SUPPLY IN CITIES AND VILLAGES.

By W. H. HEATH, M.D.,
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MUNICIPAL control or supervision of the milk industry in municipalities is, in the present state of affairs, a necessity. It should be comprehensive and made efficient by stringent ordinance, and include scrutiny and vigilance from the dairy to the consumer.

Such measures are justified by the existence of a series of conditions which menace the healthfulness of the product from its source

to its distribution ; by the fact that it is the most important article of human dietary from infancy to age under all conditions ; that, from properties peculiar to it, it is most susceptible to contaminating influences, including bacterial growth ; and, finally, by the fact that, notwithstanding its relationship to certain diseases, and especially to the scourge of the race—tuberculosis—the State and the State Board of Health are woefully apathetic or negligent in their attitude toward it.

No time need be occupied before this audience in presenting evidence bearing upon tuberculosis. The contagious character of the disease, its identity in man and the lower animals, its transmissibility from one to the other, as well as the method of restricting it, are now established facts beyond discussion.

It is not assumed that every dairy is an evil. Some few intelligent persons, of up-to-date ideas, are engaged in the business, with suitable and safe equipment ; others maintain a high sense of cleanliness, yet there is no uniform or standard procedure of hygiene as there should be. Buildings are in existence illy ventilated, lighted, and cleansed, sodden and soaked with foul material, with bad environment, and where little or no proper care of the herds is given, and, furthermore, where the work is carried on in such a manner as well as under such conditions that contamination with dirt and by micro-organisms cannot but occur, many of which, like that of tuberculosis and the bacillus coli, are important factors in disease.

A sanitary standard for protection should be adopted by the State under a system of inspection, supervision, and license.

1. It should include the correction of all sanitary evils existing at the present time.

2. Quarantine against the introduction of infected animals from without the State.

3. Veterinary inspection, with the tuberculin-test on all animals, sequestrating those suspected and destroying those infected.

4. A feature to be insisted upon should be the isolation of the herds from other animals, as maladies which attack many of the domesticated animals (chickens, cats, etc.) may, if they do not, carry infection to human beings, and by the milk.

5. Dairy license, issued only after inspection, and subject to revocation upon the violation of proper rules, which should regulate everything pertaining to the business, buildings, herds, employes, methods of milking, cleaning, cooling, and transportation.

Transportation upon railroads in many sections should be likewise scrutinized ; protection from the sun and weather at way stations, and refrigeration at terminals insisted upon. The milk should be carried only in cars especially designed for the business, by which is meant those constructed to permit easy and frequent cleaning, not previously used, or used at the same time, for the transportation of deleterious freight, such as decomposing organic matter, vegetable or animal, and additionally equipped with facilities for refrigeration during the heated terms.

Until the existing conditions referred to are remedied the milk supplied the cities is a constant daily source of infection, against which all precautions are justified and should be adopted.

In the absence of State supervision it would seem pertinent to here refer to the system adopted by the Health Commissioner of Buffalo, with the view of mitigating, if possible, the contamination mentioned. By his direction a record of the various dairies supplying the city is kept. This includes inquiry :

First, as to the herds, their health, and whether they are subjected to veterinary examination and tuberculin-test.

Second, the methods of cleaning utensils, the process and time given for cooling the milk, hour of shipment, and distance hauled.

Third, quality and source of the water supply.

Fourth, physical condition of the employes, etc.

Fifth, educational efforts in the way of causing the dissemination of literature bearing upon the interest of the dairyman and his care of the milk.

Following this, where conditions at the dairy are deleterious, or where circumstances arise of a character deemed prejudicial to the public health, instant investigation by the health department is made, and the dairyman required to correct, without delay, such conditions as may be at fault. Failing to do which, or even prior to notification, if urgency and facts demand it, the product of such dairy is interdicted at the city line ; the milk-house in the city to which the milk is consigned being at the same time notified and prohibited from receiving the milk, under penalty of the revocation of license.

Under this system, the only one available under the circumstances, it is believed that decided sanitary improvement has been made in the dairies supplying Buffalo, the ratio of infection diminished, and a corresponding influence made upon the public health.

The question of dairies sterilizing their product and shipping it from the dairy sealed, labelled, with date, specific gravity, character, etc., whether pure milk, skimmed milk, or cream, as the case may be, is one that presents many features of advantage, and is worth considering under the present state of affairs.

With this reference to the possible daily pollution or infection of milk before its entry into the city, and the causes permitting it, together with the most practical method of dealing with the problem in the absence of jurisdiction, further protection from bacterial contamination and influences arising from bad sanitation within the city will be best attained by maintaining the following conditions:

Municipal protection could and can be made almost absolute, and in some communities is as efficient and aggressive as State action is negligent and deficient. Municipal ordinance should embody the following features:

1. All milk-houses should be of sufficient and proper size, and should have light and ventilation complying with the rules of hygiene pertaining thereto.

2. They should be constructed of such material as to be sanitary, as much as possible of non-absorbent material, or so made as to permit frequent and effectual flushing and cleansing.

3. Communication, by doors or other openings, with water-closets, sleeping apartments, or other rooms liable to become a source of offence, should be strictly prohibited, nor should milk-rooms be used for any other purposes whatever than the storage of milk.

4. Storage and cooling boxes should be substantially constructed, lined with metal, elevated well above the floors, and away from surrounding walls, to permit thorough cleaning. They should be ventilated into the outer air and properly drained, but no drainage from them should directly communicate with the drainage or plumbing.

5. All plumbing should be strictly sanitary.

6. Rules with specific detailed directions for periodical cleaning of milk-house, storage boxes, cans, bottles, utensils, and information regarding the care of milk and possible sources of contamination should be adopted and conspicuously posted in the milk-room.

7. Cans should be only of such depth and such construction as to permit ready and perfect cleaning, and it should be obligatory that they be cleansed before being returned to the dairy.

8. It should be obligatory that each and every can be tagged at

its source, stating the character of the milk, its source, specific gravity as determined at the dairy, with the date and hour of shipment.

9. Milk-rooms should be permitted in cellars only under exceptional circumstances, and then should comply with every requirement of modern hygiene.

10. No milk-house or milk-room should be under the same roof or in connection with any horse or cow stable, nor should it be connected with any unsanitary buildings or surroundings.

11. Construction, equipment, care, and management should be such as to obviate the use of disinfectants, and their presence or use should be prohibited. Any odor or evidence of them about a milk-house should be construed as evidence of defective sanitation.

12. During the summer months no milk should be used when over twenty-four hours old, and during the winter the age of the milk should not exceed thirty-six hours.

13. Milk on the wagon should be thoroughly protected from the weather, and especially during the summer months, by being properly iced, and should be delivered within certain prescribed hours.

14. No milkman should deliver bottles containing milk, nor leave any receptacle of his own containing milk, at any house placarded as containing a contagious disease, nor should he receive any empty bottles or receptacles from such house, or be permitted under any circumstances to fill or refill any bottle while on the wagon.

15. A record of all cases of acute contagious diseases occurring upon the route or in the service of each milkman should be kept. Daily reference and scrutiny of the same should be made, and upon suspicion of relationship of such contagious disease to any one source of the milk-supply, or any one milk-route, immediate investigation and action should follow.

The dealing in milk in small quantities by small shopkeepers, such as grocers, confectioners, and others, should be abolished. Many of these dealers keep milk only as a convenience to their customers. Their facilities for proper storing and handling are insufficient—in fact, nothing. This traffic in milk is objectionable from the fact that it is only a small part of the business, and subsidiary to other interests. The average storekeeper has little or no information relating to milk, which, while in the store, is not only liable to absorb deleterious odors from adjacent products, from vegetables, perchance decomposing, but more seriously to contami-

nation by micro-organisms, from dust and dirt which are tracked in from the street by the feet of customers and blown about the store by the draughts. This condition is always present and a danger, and is invited by the habit of leaving the milk-cans uncovered.

Grocers and other small dealers should be and are obliged, in Buffalo, to keep posted in a conspicuous place the names and license of those from whom they obtain their milk.

To abolish this store peddling will be difficult, but existing conditions should be mitigated by personal instruction to the dealers and frequent inspection by those designated for that duty.

Adulteration of milk by water or contamination by preservation may be considered of secondary importance to the question of sanitation. Stringent ordinances relating to both are proper. Concerning the former, the use of the lactometer as a method of testing has given rise to much discussion through the possibility of evasion at the hands of crafty and unscrupulous dealers. State and city laws upon this feature are liberal, placing the standing as low as it has been deemed possible for normal milk to assume under ordinary conditions.

Vigilance should be exercised to preclude the possibility of water adulteration; though the lactometer is not perfect or absolute, and may be superseded by methods more exact, it is yet a useful instrument, and should be used to discover suspicious cases, which may be subject to further action. Adulteration of milk by water is not a common occurrence in Buffalo, and is seldom found among representative dealers. It is in the main confined to peddlers, who, having an unusual and unexpected demand, resort to the Buffalo water-supply for assistance. (Buffalo water-supply is so good that it is not considered deleterious or dangerous.) The peddling of milk in the streets as well as the distribution of milk through grocery stores and small dealers should properly be abandoned.

The yearly license system, with power of revocation and with heavy penalties for violating ordinances relating to the business, and with the further penalty of exclusion from the trade after a certain number of offences, should be adopted.

The features here specified are necessitated by the fact that in all municipalities the evils they endeavor to cover and prevent have been found to exist, and through their existence contamination has occurred, and disease has been definitely assigned to them. Almost all of these directions are, through the direction of Health Com-

missioner Wende, embodied in the ordinances of the City of Buffalo, and enforced without favor. They have been found efficient, and the security they have given to milk has been demonstrated by the low rate of infantile mortality through diseases known to be due to milk.

In conclusion, features worthy of being incorporated in to fortify existing laws relating to the milk industry may be summarized as follows:

1. The method of indirect, though arbitrary, attitude toward the dairies supplying cities, and over which there exists no jurisdiction.
2. The compulsory system of "tagging," giving character, dates, age of milk, prohibiting the sale of milk over twenty-four or thirty-six hours old.
3. Sterilization and preparation at dairy for ultimate delivery, with label system of date and character.
4. Prohibition of disinfectants. Milk-house conditions must preclude their necessity.
5. Protection from infected house by interchange of bottles and receptacles.
6. Record and supervision of the relation of contagious diseases to various milk routes.
7. The abolition of street peddling and grocery-store dealers.

VIII. DISCUSSION ON THE MANAGEMENT OF HYPERTROPHY OF THE PROSTATE GLAND AND ITS COMPLICATIONS.

1. CATHETER-LIFE, AND REMARKS UPON THE ETIOLOGY OF HYPERTROPHY OF THE PROSTATE.

BY L. BOLTON BANGS, M.D.,
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SIR HENRY THOMPSON states that enlargement of the prostate, in a moderate degree, occurs in one out of every three individuals at middle age. 2d. That 30 per cent. of men before fifty years of age have fibrous tumors of the prostate. 3d. After the age of fifty, one man in every eight has marked enlargement; but exceptionally before the age of sixty. 4th. The disease rarely begins later than seventy years of age. Reginald Harrison also

states that one-third of the male population of the world who have passed the age of fifty-five years are the subjects of prostatic hypertrophy. The question naturally arises, Why should such a large proportion of men begin to be undermined by a harassing series of symptoms, which may even assume alarming proportions, at a period of life when they ought to be the most comfortable and capable of their greatest and best work?

There must be some cause, very general in its application, and it has been attempted to find this cause in an analogy between these pathological conditions in the male and the fibroid degenerations of the uterus in the female. But, I think, a sufficient objection to this proposition is found in the very fact that while in the male such a large proportion begin to suffer from the affection in question when on the downhill side of life, in the female the great majority after forty-five years of age have a condition of comfort, and go on to an equable, satisfactory old age. Moreover, the function of the two organs is entirely dissimilar, and, as might be expected, the pathological conditions, with the exception of the cases in which fibroid tumors have developed, are also entirely dissimilar. In the great majority of cases of hypertrophied prostate the disease begins and remains in the glandular tissue, the other structures becoming involved secondarily. This pathological view will explain the absorption of the prostate which takes place, in some cases, after its function has been abrogated by the operation of castration.

From these considerations, and from careful observation carried on now for several years, I am warranted in the statement that the first steps in the enlargement of the prostate take place in youth. Admitting the presence of general systemic conditions, such as gout, rheumatism, and general atherosclerosis, which may account for some cases, I claim that the chronic irritation and hyperæmia due to excessive function of the gland, commencing often in early life, and maintained during the vigorous period of existence, is sufficient to account for the largest proportion of those who suffer from this malady. It is interesting to find what a history can be developed by careful cross-questioning, even from him in whom it would be least expected, of some excessive or unphysiological use of the prostate, which, starting in youth from ignorance or misinformation, extends all the way through life to the time when symptoms more or less severe in grade call his attention to

himself and compel him to seek the aid of a physician. This question is so immense and so complicated that in the limited time allotted to me it can only be touched upon, leaving to some subsequent occasion the consideration of it in detail. Some, and generally all, of the following elements enter into the etiology of hypertrophied prostate:

1. The habit of masturbation in childhood, caused either by some local irritation or by the teachings of bad companions.

2. Possible and probable association in the developmental years (that is, from twelve to twenty) with lewd women, or the ignorant and foolish associations of young persons of the two sexes, who do not mean wrong, but as a result of which the male is continually or frequently excited and kept in a state of sexual erethism.

3. Then, according to the moral status of the individual, follows (or accompanies) adultery or fornication, usually under the conditions of alcoholic stimulation and licentiousness.

4. If marriage takes place, these habits being already established, there is invariably excess. Subsequently there is apt to be objection to the birth of children, and then some unnatural or unphysiological expedient to prevent conception is resorted to, generally on the part of the male, and this is persisted in oftentimes for years, until symptoms arise which call the attention of the subject to his sexual apparatus. At this period the symptoms may be of a minor grade, and, an intermission in the habits taking place, graver symptoms are not presented until later in life, although in the mean time the hyperæmia which has existed from youth has caused the gradual development of the tissues composing the organ. Even at this point in the individual's life if the advice of the physician is sought, a greater or less degree of prostatic enlargement will be found to be present. Therefore, I believe that I am correct in the observation which I have established, that a degree of hypertrophy is present in many men long before it is suspected. Although surgeons have not considered it generally necessary to explore the bladder of young men (say about forty) for residual urine, they have often been surprised to find many men retaining a small but varying proportion of the contents of the bladder. Some of these cases cannot be said to have at this period of life a self-perpetuating enlargement, because many of them are susceptible of treatment and even reduction of the already enlarged gland; but if residual urine may be regarded as one of the symp-

toms of hypertrophy of the prostate, it will be found present oftener than is suspected.

The questions of varieties and morbid anatomy of hypertrophy of the prostate, obviously cannot be treated in my portion of this discussion. But how may we know that the pathological condition known as enlargement of the prostate exists? Usually the first evidence the individual has that he is abnormal, so far as relates to his genito-urinary apparatus, is occasionally some sense of irritation at or about the neck of the bladder, and some variation from his normal sexual condition. He may at times also experience a sense of fulness in the perineum, but unless there has been some cause producing an acute inflammation of the prostatic urethra, there is usually no pain incident to the early stages of this affection. As time goes on he may notice a little frequency in urination over his previous habits, and a little tardiness in starting the stream of urine. The stream of urine is not usually changed in volume, although it may at times be somewhat smaller than customary to the individual, and this fact should be borne in mind in differentiating from stricture of the urethra. Gradually, with occasional intercurrent exacerbations, the calls to urinate become more frequent; but following the ejections there is a sense of relief, and the individual is not aware that he does not completely empty the bladder and that the latter is gradually becoming fuller and fuller. At this time he may complain of a dull pain over the sacrum or in the lumbar region, which is generally treated as "rheumatism" by domestic remedies. Still later the bladder becomes distended by its fluid contents; the hydrostatic pressure gradually thins the muscular layers, and there is now more or less atony as manifested by a slow, feeble, dribbling stream. There may also be a relaxation of the cut-off muscles surrounding the neck of the bladder and the prostatic urethra. This permits a small quantity of urine to enter the urethra, and then there may be a constant and tormenting desire to urinate a few drops with, perhaps, involuntary evacuations or "overflow." The latter is apt to take place at night, during the relaxation of sleep, and the individual has the added misfortune and mortification of wetting his bed.

At this juncture, if not before, advice is usually sought, and the question arises in the mind of the attending physician, What is the cause of this frequency and perhaps involuntary urination? It will not do to say that he has "incontinence of urine," and

prescribe alkalies and diuretics, for these only make matters worse by increasing the volume of fluid in the already over-distended bladder. But if an adult presents himself with the series of symptoms which have been narrated, and especially if he has the nocturnal involuntary urination, a careful and discriminating diagnosis must be made, for these symptoms point to some obstruction which the bladder has long been endeavoring to overcome. Stricture of the urethra must be excluded by eliciting the patient's history, and by a careful and aseptic exploration of the urethra with the bougie à boule and a sound. The latter, even if failing to detect stricture, may take the place of a searcher at this point in the examination, and furnish evidence of an obstruction at the neck of the bladder, either by failure to enter or by the amount of rotation or depression of the handle required before feeling its point free in the bladder. In general, a searcher of the Sir Henry Thompson pattern is the best exploring instrument, and will often enable the physician to outline the prostate with great accuracy. The passage of a catheter into the bladder, and finding a varying amount of urine remaining, after the patient has been requested to urinate and expel all that he can spontaneously, will usually make the diagnosis clear, especially if added to the evidence furnished by the searcher. The simple passage of a catheter into a supposedly empty bladder may often suffice to establish the diagnosis, but cannot be relied on in a doubtful case, for enlarged prostate is not the only cause of residual urine. Digital examination of the prostate by the rectum should supplement the other parts of the exploration, and may reveal a large, full-lobed, fibrous or swollen and sensitive prostate gland, but the diagnosis of retention due to hypertrophy of the latter should not be based upon this alone. Here it should be remarked that now a new series of symptoms is liable to appear, from the possible advent of urethral fever, or cystitis, or both. Remember that it is not the presence of residual urine alone which is dangerous, although when large in volume it may cause a serious condition of vesical atony, with, perhaps, a secondary dilatation of the ureters and congestion of the kidneys from back pressure. But the presence of residual urine always renders the bladder liable to infections.

Normal urine does not necessarily inflame the bladder, but residual urine and the congestion due to the efforts of the bladder to expel its contents prepare the way for the development in the

bladder of infection, with subsequently that series of tissue change which we call inflammation. Therefore, the first introduction of a catheter into any man giving these symptoms should be regarded as a surgical operation, and must be conducted with the most scrupulous attention to surgical details. The meatus and penis should be carefully scrubbed with soap and water. Clean towels, if obtainable; if not, sterilized gauze, which the physician should take with him, should be so placed as to surround the penis. The hands of the operator should be carefully prepared with soap and water, steeped and scrubbed in pure alcohol. Then the penis and the urethra should be irrigated with an antiseptic solution, and for convenience and ready adaptability a solution of salicylic acid (eight grains to the pint) may be used. Then the catheter, which has been previously sterilized in formaldehyde gas or formalin solution, should be removed from its wrappings of gauze, smeared quickly with a sterile lubricant, and, maintaining a current through it of the antiseptic solution, should be carefully and gently introduced. The lubricant which I prefer is made for me by Van Horn & Co., of New York, and is composed of Irish moss, with the addition of eucalyptol, one part to a thousand parts, and formaline, 1 to 2000. This first introduction of the catheter into a bladder in which there is presumably residual urine is so important, and may involve so much for the patient that, in my opinion, he (or some member of his family) should be informed that, although every precaution will be taken, there is a possibility of infection of the bladder, and that if the latter should ensue the patient is liable to "cystitis." Sizes and kinds of catheter are of sufficient importance to be considered. A catheter which will be easily admitted by the meatus, and as large as will be admitted by the latter, should be chosen first. It should be a soft-rubber instrument with a solid tip, and its introduction should be made with the utmost slowness and gentleness. The urethra is the habitat of microbic bodies, many non-pathogenic, but some pathogenic, and the urethra and bladder may be made more vulnerable and liable to infection from these in proportion to the damage which may result to the epithelium by the unskilful or harsh use of the catheter. Moreover, if there be any reason to suspect that the individual has any catarrhal conditions of the colon or rectum, or if he has been liable to chronic constipation, the first use of the catheter should be postponed if possible, even for diagnostic purposes, until the bowels have been

thoroughly emptied by free catharsis or by a high enema, and perhaps irrigated by a weak solution of chlorinated soda. This is for the purpose of preventing infection of the bladder by the development of the bacillus coli commune. The foregoing diagnostic suggestions are made in relation to a case in which there is as yet spontaneous urination. If, however, the case presented is one in which suddenly complete retention has taken place, the patient not being able to pass any urine except, perhaps, in drops, and whose agonizing attempts to evacuate the contents of his bladder are producing an aggravation of all his symptoms and intense suffering, no delay, excepting the reasonable time which should be allotted to the preparation of instruments, can be permitted. Relief must be attained speedily or the condition may become serious. The same directions as to absolute cleanliness of persons and instruments apply as in the previous case ; but one form of catheter may not suffice. Of course, the first one to be tried is the soft and flexible one, such as I have shown you. Its passage may be facilitated by the previous introduction of twenty to thirty minims of a 4 per cent (or 8 per cent.) solution of eucaine, after the urethra has been irrigated. Eucaine is somewhat slower in its action than cocaine, and six or eight minutes should be allowed for its absorption before local anæsthesia will be obtained. If the soft catheter fails with gentleness to enter the swollen and sensitive prostatic urethra, then resort may be had to one, either with an angle at the end, called "coudé," such as I now show you, or one with two angles, known as the "bi-coudé," or to one with a curve and a tapering bulb pointed end, known as the "natural curve catheter," which I now show you, and which has been of the greatest use to me. Even these may fail, and then resort may be had to other forms—some of which I show you—or to a carefully sterilized silver instrument with a large, long curve, known as the "prostatic" curve. But if these successive steps cause traumatism of the urethra, as evidenced by a few drops of blood oozing from the meatus, and it is manifest that the manipulations are to be prolonged, I advise in view of the safety of the patient that all instrumental attempts by the way of the urethra should be desisted from, and the overloaded bladder be relieved by suprapubic aspiration. Of course, it is needless to say to you that this procedure should be undertaken with the same careful sterilization of the hands and of the place of puncture, and care in the preparation of the aspi-

rating needle, as in any other surgical operation. Aspiration may be repeated as often as once in four or six hours when carefully conducted, without damage, and with great relief. A high enema should be given, and in the intervals of the aspirations hot antiseptic irrigations of the urethra should be instituted, together with hot irrigations of the prostate through the rectum by means of Kemp's tube. These will aid materially in reducing the congestion of the prostate, which, added to the chronic state of hypertrophy, has resulted in this sudden attack of retention. In this way a certain amount of spontaneous urination may be restored, but in many cases this will be deferred indefinitely. At this time the conditions are so acute that no attempts should be made to massage the prostate, but subsequently digital massaging of the prostate through the rectum will help to relieve the overloaded bloodvessels of the gland and facilitate the introduction to the "catheter-life" which in all probability must now begin. The question of prolonged drainage of the bladder is in my opinion to be considered at this stage, only in case the bladder becomes infected, and that the latter cannot be made clean, nor obtain rest by irrigation. This operation can only be considered in relation to a given case, and must be determined by the judgment of a competent surgeon.

In order to consider the details of this "catheter life," a broad or general grouping of these cases may be made clinically into those who have more or less spontaneous urination, and those who are absolutely dependent upon the catheter. As the latter class is the most important, let us follow the case of the patient to whom we have been called in the emergency of complete retention. Generally in two or three days, aided by the measures which have been instituted, the congestion will have subsided sufficiently to enable a catheter to be introduced and the patient relieved without further resort to the aspirator. Unless great care is exercised in the first few introductions of the instrument, minute traumatism of the prostatic urethra may take place, and the patient suffer so keenly that he dreads the time when the instrument must be passed. This suffering may be modified, of course, by the use each time of eucaine or cocaine, but in the intervals of the use of the catheter something must be done to relieve this sensitiveness. There are several suggestions which may be followed, such, for example, as the continuation of the hot irrigations which were being used during the acute stage, and this same hot antiseptic solution should be

allowed to flow through the urethra each time the catheter is used. Massage of the prostate may now be instituted with great comfort to the patient, but must not be done violently or for too long at each time. Subsequently a weak solution of nitrate of silver, not over 1 to 5000 to begin with, and gradually increased in strength, may be applied to the whole of the deep urethra, and especially at the bulbo-membranous junction, by means of an instrument which shall gently distend the urethra at the same time that the application is made; or else by injecting the solution through a catheter of a size which has been found to enter with the least pain. Also, the careful and gentle introduction of a sterilized steel sound, smeared with iodoform emulsion, will be found to relieve this sensibility. If in spite of care and gentleness and patient effort the hypersensibility remains, and especially in those cases in which not even a measure of spontaneous urination is restored, or in which infection of the bladder has taken place and an inveterate and painful cystitis persists, some operative procedure must be considered. The first of these, in my opinion, is the question of drainage of the bladder, and this branch of the subject will be presented by my colleague, Dr. Willy Meyer. I may be permitted to say at this point, that whether my opinion in regard to "drainage" being the first operation to consider, will be changed by the reawakened galvano-cautery treatment, remains to be seen. I am making some observations in regard to it, and trust that my experience combined with that of others will enable us to ascertain its merits. The other questions pertaining to the radical cure of prostatic cases which might with propriety be considered here will be presented to you by my colleagues who have undertaken these branches of this discussion. To proceed with the consideration of patients who are to lead what is commonly known as the catheter-life, we will now assume that the irritability of the urethra has subsided, and that the catheter can be painlessly entered. The patient may now be taught to introduce the instrument himself, and the care of the catheter, etc., but first and foremost the principles upon which depend the maintenance of a sterile bladder and urethra must be forcibly impressed upon him. If at all intelligent he can understand, since the knowledge in regard to microbic bodies has become so widespread, that he may easily poison himself, and that if he does, there will follow a long train of complications which are the results of an infected bladder. It may be said in general that if

the urine remains sterile the catheter may be passed at the patient's convenience, but this should be done once in six hours at the least, leaving a longer interval at night, but depending somewhat on how long the individual sleeps. Many a prostatic with sterile urine, and yet dependent upon the catheter for the relief of his bladder, will sleep eight or even ten hours without being waked to urinate, while the complacent citizen who has no prostatic enlargement will habitually be called upon to rise at least once in the night to urinate. So long as the urine remains clear and sterile, no necessity for washing the bladder exists. But even after the patient has become established in the habits of using his catheter, and has acquired the skill and facility which many of these patients do, he should visit his physician at regular stated intervals in order that the first evidence, even a slight one, of infection may be ascertained, and if possible immediately remedied. Unfortunately, many of these individuals become so self-confident and so satisfied with their condition, that infection takes place insidiously, increases gradually, and suddenly there is an explosion of cystitis, which may or may not be accompanied by an intercurrent prostatitis. I am in the habit of humorously informing these men that they should periodically submit themselves to the inspection of their medical advisers on the same principle as that with which they cheerfully pay the fire insurance premiums upon their property. Now we will suppose that infection of the bladder has taken place and cystitis has arisen. What shall be done? During the acute stage the individual should go to bed, be placed upon a milk or light diet, and an antiseptic be administered by the mouth which will easily find its way into the urine. I am now well pleased with the use of benzozol. It may be given in two- or three-grain doses as often as every two hours, but I have given it in five-grain doses without harm. It is usually well borne; does not set free carbolic acid like salol, and in the intestines (chiefly) is transformed into guaiacol and benzoic acid. Now resort must be had to washing the bladder, and if the patient is seen early enough, the effect of the infection may be aborted by the careful irrigation of the bladder with a stronger solution of nitrate of silver than I have mentioned. It is surprising sometimes to see how a threatened severe attack may be modified by the introduction into the bladder of a solution of nitrate of silver of even 1 to 1000. Here let me say that this must be gently done. The bladder walls are congested, are contracting more frequently

and more vigorously than normal, sometimes with a marked degree of tenesmus, and if a large quantity of the fluid is injected or allowed to run in with force, it will aggravate the conditions present. It is best to be content to inject only an ounce or two ounces of the solution, allowing it to run out, and then repeat. The first effect is an irritation. The patients experience what some of them jocosely call a "red-pepper" feeling, but they get so much relief that they often ask for a repetition of the "red pepper." If this does not give the expected relief, then frequent ablu-tion of the bladder—that is to say, three, four, or even more times a day, if the urethra will bear the introduction of the catheter, with a mild antiseptic solution—must be resorted to. The first effect of the solution upon the mucous membrane of the individual must be studied, and sometimes it may be necessary to resort to so mild an irrigating fluid as the normal salt solution, which may be made extemporaneously by dissolving one drachm of chemically pure chloride of sodium in a pint of hot sterile water. As the case becomes more chronic and the bladder less sensitive, the bladder may be washed less frequently, the irrigating solutions may be varied according to the amount of pus and mucus present, and once in three or four days the physician may use the solutions of nitrate of silver as suggested.

In the time allotted to my branch of the subject I can only generalize, and must leave the details in these cases very largely to the good judgment and carefulness of the physician. Now let us consider the cases in which there remains a certain amount of spontaneous urination. How often shall the catheter be used in these? This depends largely upon the amount of residual urine—that is to say, the average amount of urine which remains in the bladder after each active urination, and upon the sensibility of the latter organ. In many cases there is no accumulation of urine beyond this average amount, which remains at or about two ounces, excepting during some intercurrent condition of the prostate, which may cause an increase in the degree of obstruction. If this quantity of urine is normal—that is to say, does not become infected, is normally acid, contains no crystalline elements—in other words, is of a bland, non-irritating character, the bladder does not resent its presence, remains quiescent, and the patient is not conscious of any irritability. In such subjects and under such conditions, it is not necessary to use the catheter at all; but if the urine changes in its

quality, and especially if obscure pains over the sacrum or in the pelvis arise, then it may be necessary to withdraw even this small amount of urine, and particularly at night, in order that refreshing and undisturbed sleep may be obtained. In some individuals, even one ounce or less of residual urine, if the latter though sterile be abnormal in other respects, will irritate the bladder, and, therefore, it should be withdrawn. As has already been remarked, in these cases of sterile urine, it is not necessary to resort to washing of the bladder. But after the bladder has become infected, how often shall the bladder be washed? Only general directions can be given in answer to this question. The repetition of the washing will depend largely upon the amount of pus and mucus present in the urine, upon the frequency with which the patient is called upon to urinate, and also upon the general irritability of the nervous system of the individual. Some persons require daily ablution; others, once in two or three days; and others, again, not oftener than one irrigation a week. The interval should be that which suffices to keep the patient comfortable; thus, many men continue for years to urinate but once in four or five hours, and are not disturbed at all during the night. After the patient has learned to introduce the catheter, the most important instructions which can be given him are as to the care of this instrument. The form and kind of catheter having been adapted to the individual, directions which will keep it aseptic must be strenuously enforced by the physician and rigidly followed by the patient. In my experience, these directions, in order to be rigidly followed by the patient under all conditions, must be simple. Even in the case of medical men who are the subjects of prostatic hypertrophy, and who from their calling are supposed to know the value of thorough asepsis, I have found it necessary to make my directions as simple as possible, in order that they might be followed.

Heretofore thorough washing of the catheter with soap and water after each use, and then immediately before its use, steeping the instrument in boiling water, and then in the solution which the patient was about to use for washing the bladder, has proved satisfactory in some respects, but, of course, not entirely so. Here I may say that the general intelligence of the patient and the general health of his tissues have much to do with the prevention of infection. Men who maintain what, in mercantile phrase, may be called a "par" of health keep their tissues in a state of invul-

nerability, and are able to resist a moderate degree of infection. But we have unquestionably needed a simple but efficient and non-destructible method of rendering and maintaining our catheters thoroughly aseptic, and a means which could be readily employed by our patients. It seems to me that we have this means in formaldehyde. Experiment has been made with this gas on all sides, but the use of the gas is not within reach of everybody. We employ in my office a Lilly's apparatus, which generates the gas directly from wood alcohol, and catheters and other instruments may be exposed to its influence for hours.

Lately my attention has been called to a fallacy in the use of the gas, and I may be allowed to quote from a recent paper by Dr. Park, of New York, who made some observations upon the diffusibility of the gas in long closed tubes, such as we may consider a catheter to be. For example, he filled a glass tube with colonies of bacteria, and noted that those at the extreme end of the tube were not touched by the gas. He drew the inference that, although the gas might enter each end of the catheter, there might be a zone in its centre untouched by the gas. Hence, it appears that a current is necessary for the transmission of the gas through the catheter, or to the end opposite to that at which generation of the gas takes place. Therefore, since the polymer of the gas, known as paraform, which is in the form of powder or tablets, and which volatilizes, has been used for the purpose of maintaining catheters sterile while suspended in glass tubes or in boxes, I beg leave to call your attention to this experiment of Dr. Park.

In order to ascertain whether the solution of formaldehyde called formalin (which is a 40 per cent. solution) would answer the purpose, and to ascertain the strength of the solution necessary to render catheters sterile, I took three catheters that had been used by patients; one which had been used for the purpose of withdrawing sterile urine, and only used three or four times; another which had been used by the patient for some months, but whose bladder was infected; and a third one, which had been in use for nearly two years in a moderately infected bladder. These catheters had all been treated in the same way by the persons who used them; that is to say, they had been carefully washed in soap and water immediately after use, and then steeped in boiling water, and also steeped in boiling water immediately before being passed into the urethra. Not to weary you with the details, I will say

that in No. 1, staphylococci were found, a non-pathogenic and a large pathogenic bacillus. In No. 2, a large coccus and a diplococcus, differing morphologically from the coccus of Neisser; in No. 3, staphylococci and streptococci, and a large spore-bearing non-pathogenic bacillus. A 1 per cent. solution of formalin was used. This killed all pathogenic germs after fifteen minutes' immersion, but it should be observed that in sterilizing catheters in the liquid formalin, care should be taken to see that the air confined inside is displaced (by the liquid) by a process of stripping or milking. This I regard as highly important, and desire to call your especial attention to it. From the foregoing may be deduced the following general directions, which must be rigidly followed by the patient :

The soft catheter with solid tip is the best to use if possible. If a rigid one is required, one of the elastic-webbing ones, with that curve or bend at the point which shall be the most comfortable for the patient. A catheter purchased new from the shops must be treated with the same care as to cleanliness and asepsis as one which has been in use. It should be exposed to the vapor of formaldehyde if possible; if not, it should be immersed in a solution of 1 per cent. or 2 per cent. solution of formalin at least fifteen minutes. Then it may be rolled in a strip of bichloride gauze or between the folds of perfectly clean towels and kept by itself. Each catheter should be kept separately in a receptacle or closed drawer where dust shall not find access to it, and where it shall not be handled except by the individual who is to use it. If the patient's necessities require that the instrument must be carried about with him, it should be kept wrapped in several layers of bichloride gauze, and outside of this a wrapping of "waxed" (paraffin) paper held firmly by rubber elastic bands. At the time of use the patient must thoroughly clean his hands and rinse his fingers in pure alcohol, of which he should always have a quantity on hand. In the mean time the catheter may be steeping in the formalin solution. Then, after wiping off the drops which may remain upon it with a piece of clean gauze, and smearing it with the lubricant, of which I have already given the formula, he should gently introduce it. Immediately after its use it should be thoroughly washed with soap and water, steeped in the solution of formalin, and then carefully put away in gauze or the clean towels for the next use. If the individual is dependent upon his catheter,

and must have one at his place of business, it is well to provide one sterile catheter for each occasion, to be cleansed as well as possible immediately upon using, and then to be put away for thorough sterilization on his return to his base of supplies. I have a patient who has a rule never to use a catheter more than a week. He buys them by the dozen, is very particular in their care, and at the week's end throws the catheter away and starts in with a new one. He maintains his bladder in an admirable condition, and I may say that I rarely see him. But he comes in for an occasional inspection, and feels well repaid by his comfort for the care which he exercises.

IX. DISCUSSION ON THE MANAGEMENT OF HYPERTROPHY OF THE PROSTATE GLAND AND ITS COMPLICATIONS.

2. BOTTINI'S GALVANO-CAUSTIC RADICAL TREATMENT FOR HYPERTROPHY OF THE PROSTATE.

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MR. PRESIDENT AND GENTLEMEN: The surgeon who is called upon to-day to give his advice in regard to the best method of treatment for hypertrophy of the prostate gland still finds himself in a rather embarrassing position. It is true, quite a multitude of operations designed for the radical cure of this trouble are at our disposal, yet to propose the proper one in a given case is doubtless a difficult task.

A great deal has been written on this subject, many discussions have been held concerning the same here and abroad, but we are far from being able to draw definite conclusions as to the value and indications of the various operations.

As the matter presents itself to-day, it seems to me the wiser course, in all cases in which catarrh of the bladder complicates the trouble, not to propose an operation of any kind at once. It cannot be denied that in many instances irrigation of the bladder carried out very carefully by the attending physician under strict aseptic precautions, every day or every other day, yields very gratifying results. This treatment is greatly assisted by the internal application of urotropin, from three to eight times a day, eight grains in

capsules or oblates (wafers). Only very recently Mendelsohn, Casper, and others¹ called our attention to the great relief this drug affords patients afflicted with cystitis and pyelitis, also in cases of prostatic enlargement. My personal experience fully corroborates this observation. The favorable influence of the drug is explained by the fact that the urine of persons who have taken urotropin internally frequently contains for many days formaldehyde, the antiseptic value of which is well known. Urotropin is a chemical combination of four molecules of ammonia and six molecules of formaldehyde. Of course, irrigation of the bladder will not generally influence the size of the prostate, and hence not reduce the residual urine, although it has frequently been the means also of improving this objective symptom. But the residual urine as such does not bother the average prostatic patient; what bothers him mostly is the infectious inflammation of the vesical mucous membrane that has been carried into the bladder by instrumentation or by micro-organisms that have wandered from the rectum into that viscus. Frequently the irritability of the bladder is partially caused by a present pyelitis.

If catarrh of the bladder be absent and the case be a recent one that admits of temporizing, we may eventually first try one of the other non-operative methods which have been proposed lately: Rectal tamponade of Manasse, or the parenchymatous injection of cocaine into the testicles with the view to produce atrophy (Couilly), although neither of these procedures gives much hope for permanent improvement. The feeding with prostatic tablets might also come into consideration (Englisch, Reinert). The latter author gave a promising report on this branch of organo-therapy before the Thirteenth Congress of German Physicians at Munich, 1897. Of course, all these procedures could also be combined with the irrigation treatment mentioned before.

But suppose our efforts to alleviate the patient's condition with these means have not been successful; suppose also that the patient be in the fifties, and refuses to have his testicles removed or his vasa deferentia resected—the two operations which, no matter what

¹ M. Mendelsohn, *Berliner klinische Wochenschrift*, 1898, No. 8; L. Casper, *Deutsche medicinische Wochenschrift*, 1897, No. 10, Beilage; J. Cohn, *Berliner klinische Wochenschrift*, 1897, No. 42; E. Schreiber, *Deutsche medicinische Wochenschrift*, 1897, No. 11, Beilage. The drug was first introduced and recommended by A. Nicolaier, of Göttingen, as a uric acid solvent. Lately he also emphasized the beneficial influence of urotropin on infectious processes of the urinary system with ammoniacal reaction of the urine.

great improvements may yet be made in the direct interference for hypertrophy of the prostate, will, it seems, forever hold their place in this branch of operative surgery—shall we then in such a given case resort at once to the more serious operation, namely, that of attacking the gland directly with the help of prostatectomy by the suprapubic or the perineal route, or both routes combined? Or shall we try to influence the size of the organ indirectly by tying the internal iliac arteries—a method which, according to my experience, still deserves a place among the operations for the trouble here under discussion? Or shall we, in such cases, when the patient refuses to run the risk involved in either of the afore-mentioned operations, establish a suprapubic fistula with subsequent permanent drainage of the bladder?

With reference to the latter procedure, I will state right here that the oftener I have done it the less I like it. It is true one of my patients, now sixty-seven years of age, has worn a permanent catheter in his suprapubic fistula with comparative comfort since 1888, and still drives to the cemetery—he being a church sexton—several times a week or a month, over rough roads, on a coachman's seat, and empties his bladder every couple of hours through the catheter, which is cut short and closed with a wooden plug. On the other hand, I have seen such patients in a pretty uncomfortable position, and this in spite of my attempts to relieve them with the aid of a more convenient apparatus for permanent suprapubic drainage of the bladder than that heretofore in use—an apparatus which I devised four years ago and after sufficient trial am now ready to publish.

At this time of the still present uncertainty as to how to advise a patient who is afflicted with this most frequent disease, we are greatly indebted to Dr. A. Freudenberg, of Berlin, for urgently having called our attention, in the early part of last year, to Bottini's galvano-caustic radical operation for hypertrophy of the prostate.¹ It is almost incredible that this, as it seems, splendid operation should have been practised for twenty-two years by virtually only one gentleman—namely, the inventor of the method, Enrico Bottini, of Pavia—and that in spite of the fact that he has repeatedly drawn the attention of the profession to his work.² A

¹ *Berliner klinische Wochenschrift*, 1897, p. 15.

² "Galvani," 1874, tome x., and "La galvanocaustica nella pratica chirurgica," Milano, 1876 (text-book). *Archiv für klinische Chirurgie*, vol. xxi., 1877, pp. 1-24, and vol. liv., 1897, Heft 1.; previously published in the Italian language in *La Clinica Chirurgica*, July 31, 1896, tome vii., p. 281.

possible explanation I can find only in the fact that the instruments used in this operation were formerly made in Italy, and that Bottini for a number of years never finished improving them. A new impetus to follow in his footsteps was given to the medical profession when the well-known house of W. A. Hirschmann, of Berlin, undertook the manufacture of the instrument, making it a very handy and reliable one.

When Bottini performed his first operation, on October 26, 1875, he made use of the so-called "cauterizzatore prostatico," representing an instrument of the shape of a catheter of medium calibre with a short beak, the latter carrying on a porcelain disk a platinum plate about three-fourths of an inch long. With this plate, made red-hot by the electric current, he cauterized the prostate thoroughly at different spots, if necessary, repeatedly. When the eschar had been pushed off, improvement often began to set in; at times it took thirty days before the patients could notice the effect of the interference.

Two years later Bottini was able to publish five successful cases treated in this way.¹ With increasing experience, he discarded the cauterisator and made use only of the second instrument, the "incisore prostatico," which removes the mechanical obstruction to the outflow of the urine at the neck of the bladder by slowly burning a groove or grooves through the same, and not by superficial destruction. This instrument² (Fig. 1) shows a male and female arm not unlike a lithotrite. The beak of the female part forms almost a right angle with its shank, and has at its concave side a deep groove. The shank of the male arm shows a platinum knife, about five-eighths of an inch long (*Pl. kn.*), which leaves the groove of the female arm on turning an Archimedean screw (*Ar. Scr.*) at the outer end of the instrument. A scale (*sc.*) attached to the latter admits of exactly gauging the length of the groove to be cut. The instrument further shows the so-called cooling apparatus which was added to it by Bottini in 1882, and which, no doubt, constitutes a very important feature, inasmuch as this alone saves urethra, prostate, and bladder from accidental burns. A short metal tube, the outflow of which is covered by rubber tubing (thick-walled, to prevent bending), enters immediately below the lower end of the

¹ Archiv für klinische Chirurgie, xxi., 1877, loc. cit.

² The instrument was first demonstrated by me before the surgical section of the New York Academy of Medicine, November 8, 1897.

FIG. 1.



Bottini's incisor.

FIG. 2.



Freudenberg's modification of Bottini's incisor.

handle, and runs through the entire length of the shank and through the beak to the opposite side of the instrument, there showing an outlet of the same shape and length. Over this another rubber tube is slipped. The nozzle of an irrigator filled with cold water is attached to one end of the tube, and when the water is turned on the mechanism performs its function so exactly that the finger can touch the beak or the shank at any spot without the slightest sensation of heat, although the platinum knife has been made red or even white hot.

In working with this instrument a number of drawbacks were observed. Thus it happened that the platinum knife, when heated and slowly ploughing its way through the prostate, being pulled or pushed by the turns of the Archimedean screw, bent sideways; on its return it then did not slip into and disappear within the groove of the female shank. The reason for this annoying accident was first thought to be insufficient heating of the knife, owing to too weak an electric current, and certainly this factor must be considered. But later it was found oftener in the fact that the well-heated knife became crooked on account of a turning sideways of the entire instrument in the hands of the operating surgeon. This happened so easily on account of the absence of a proper handle. The result of such an accident is that the removal of the instrument from the bladder and urethra is difficult, causes pain and hemorrhage (Czerny). Furthermore, the cooling apparatus, entering the shank below the incommodious handle, did not prevent the latter from becoming heated by the current. The conductors were eccentrically attached to the upper end of the instrument; when the latter was turned around its longitudinal axis they became twisted. The instrument on the whole was too light and too long. A. Freudenberg, of Berlin, who found these drawbacks by practical use, has greatly improved Bottini's instrument with regard to its shape and handiness, as well as to its electro-technic construction and possibility of sterilization (Fig. 2). He somewhat shortened that part of the instrument which enters the urethra and bladder (shank twenty-six centimetres instead of twenty-seven centimetres), at the same time making it considerably heavier by providing it with a compact handle (*Gr.*), seven centimetres long, such as we are used to grasp when working with the lithotrite. He moved the small water-pipes of the cooling apparatus (*K*) to the upper end of the handle, and gave them an obliquely down-

ward and inward direction.¹ At this place the rubber tubes will not be compressed so easily by the operator's hand ; but they must nevertheless have a sufficiently thick wall not to bend when the instrument is turned. The cold water, running also through the handle, keeps the latter always cool. The two cables are thinner than those in the original Bottini incisor, and, with the help of a silk texture woven around them, are united into one big cable (*L*). The latter, being attached to the cable contact (*P*), can be easily slipped over a pivot at the upper end of the longitudinal axis of the instrument (*C*). This point moves up and down with the turning of the wheel, and carries both poles in a concentric arrangement. One push on the cable contact suffices to unite the parts. A small contact-screw (*CS*) makes and breaks the current. This screw is also found in the original Bottini instrument (Fig. 1, *s*). The scale marks (*Sc.*), on the central stem just below the wheel—which latter, by being turned, moves the platinum knife up and down—are made all around the stem and show numbers at every 120°—*i. e.*, three times. This enables us always to satisfy ourselves as to the distance between the knife and its groove, no matter how we may have turned the instrument. In the original Bottini these marks are engraved on one part of the circle only. The principal improvement, however, is found in the platinum knife (*Pl*). As stated above, that in Bottini's incisor sometimes bends sideways, and then does not enter the groove of the female shank. To avoid this as much as possible, the groove itself has been widened ; the knife is made of an alloy of platinum with iridium, which is much harder than the pure platinum and offers greater resistance to the electric current. For that reason a weaker current suffices to heat it. With this same point in view—namely, to reduce the demands on the battery—the electric conduits were changed. Instead of running two very small wires down to the platinum knife through the shank of the male part, one single wire of double calibre has been substituted. It corresponds to the positive pole. The negative pole is directly united with the metal of the male shank, and, on account of the close contact of the latter with the female one, virtually with all the metal of the instrument. In this way it was necessary to connect but one end of the knife

¹ The position of these two tubes will always tell us to which side the beak of the instrument is directed after the latter has been introduced into the bladder. They correspond to the concave side of the beak.

with the wire; the other one could be directly soldered to a projection of the metal at the lower aspect of the male shank. As will be readily seen, the position of the knife is thus made much firmer than it is in Bottini's incisor, in which it is attached to two wires. By selecting for the occlusion of the male shank a cement which can be thoroughly exposed to water and heat without being affected thereby, it could be arranged to sterilize the entire instrument by boiling, the same as we are wont to do with other surgical implements.

I am sure Bottini's incisor, as modified by Freudenberg, is the one which will be used by surgeons when dividing the hypertrophied prostate with the galvano-caustic knife introduced through the urethra. It is manufactured in the Electro-Technic Institute of R. Kiss, Berlin, Königgrätzer Strasse 85. It impresses one as being a very reliable instrument.¹ It is worth stating that Bottini, at the last International Medical Congress, at Moscow, gave preference to this improved instrument.

The operation itself should, if possible, be preceded by a cystoscopic examination, a point which has been emphasized already by Freudenberg. This will enable us to avoid any difficulty during the after-treatment which may be caused, for instance, by the presence of a vesical calculus which has not or could not have been detected with the searcher. It will also inform us regarding the configuration of the prostate, as to the presence of a median lobe, and as to any difference in the size of the lateral lobes, which latter fact may also be corroborated by outlining the internal contours of the prostate with the stone searcher; it is often supplemented by rectal digital examination.

I want to emphasize here the fact that we can very well diagnose the configuration of the prostate with the help of the cystoscope, partly by observing the shape of the internal vesical fold, partly by bringing the handle of the cystoscope over to one side of the patient, thus conducting its beak into the bladder as far to the one side as possible. In this way we can often clearly distinguish a swollen median lobe, which then, however, is generally not brilliantly illuminated, but rather lies in the shade. I state this par-

¹ The instruments, Bottini's and Freudenberg's, were imported for me by the Kny-Scheerer Company, 17 Park Place, New York City. Both are now manufactured in this country by this company; Bottini's original instrument also by Messrs. George Tiemann & Co. Freudenberg's instrument was demonstrated by me before the Section on Genito-urinary Surgery of the Academy of Medicine, December 14, 1897.

ticularly to contradict Dr. E. Fuller, who maintained, at one of the late meetings of the Section on Genito-urinary Surgery of the Academy, that this was an impossibility and mainly existed in the phantasy of the observer. To prove the correctness of my statement, I would mention the case of the father of a colleague, on whom I was requested, some seven years ago, to perform cystoscopy for hypertrophy of the prostate. In this case I distinctly diagnosed a median lobe of the prostate projecting into the bladder, almost as long as the third phalanx of the little finger; there was besides general hypertrophy of the gland. This patient was later operated upon by Dr. Edward L. Keyes, by suprapubic radical extirpation of the gland, when the condition of the prostate was found to be exactly as previously seen by me through the cystoscope.¹

The technique of Bottini's operation is simple. After the bladder has been carefully irrigated and emptied the posterior urethra is locally anæsthetized with cocaine or eucaine, one and one-half drachms of a 1 or 2 per cent. solution (eucaine, 5 per cent.) being injected either into the posterior urethra directly or into the anterior portion of the canal, and then pressed backward by gentle massage over the perineum. Five minutes later the mucous surface will be found to be sufficiently insensible to render the operation painless.²

Before the incisor is introduced pains must be taken that the bladder is thoroughly emptied, for it is obvious that then the effect of the cautery is far stronger. It is also necessary to test the efficiency of the battery repeatedly before starting the real work. With the help of the rheostat attached to the battery, the electricity needed for heating the instrument is gauged so as to allow the platinum knife to turn thoroughly red hot. If this is carefully attended to, no bleeding will set in after the operation. In order to ascertain how well the heated knife will cut its way through the prostatic tissue, Bottini advises taking a piece of moist sterile gauze and trying the knife on that first.³ It is, furthermore, necessary that an assistant be ordered to do nothing else but watch the work of the cooling apparatus. He has to see to it that the outflow of water from the instrument never ceases.

¹ New York Medical Record, 1891, vol. xl., p. 526, Case II.

² Bottini succeeded in doing the operation even without cocaine, and heard his patient complain of a momentary pain only when opening and closing the electric current. If patients suffer from painful spasmodic contractions of the detrusor muscle, when the bladder has been entirely emptied, it seems to me wiser to put them for the brief operation under the influence of general anæsthesia (Schleich's solution No. 1).

³ I deem this point to be very important.

These preliminaries having been carefully observed, and the screw at the outer end of the instrument (CS, Fig. 2), which makes and breaks the current, having been turned to the left, thus temporarily breaking the current, the instrument is introduced into the bladder in accordance with the rules of ordinary catheterism.

Whoever has seen a case of marked hypertrophy of the prostate when the bladder was opened by suprapubic incision will have found that the gland in a great many cases surrounds the internal urethral orifice in the shape of a collar. In other words, there is a circular swelling at this spot, which, of course, is most pronounced in its lower half. On the basis of this anatomical fact, Bottini burns with his incisor one, two, or better still, three grooves at one sitting—namely, a short one toward the symphysis, another just opposite directly backward toward the rectum, and a third one through that lateral lobe of the prostate which appears to be the larger one. Following his advice we shall, therefore, in a case of very marked hypertrophy of the prostate, as soon as the instrument has entered the bladder, pull it forward toward the anterior wall of the bladder, at the same time slightly raising the handle outside, until we feel the resistance inside. Then the cooling apparatus is started and the screw at the outer end of the instrument turned to the right, thus making the current. We wait about fifteen seconds until the platinum knife gets red, and then slowly turn the Archimedeian screw to the left on Bottini's original instrument, or turn the wheel to the right on Freudenberg's modification, reading on the scale how far we have proceeded. If the knife does not work easily, the current is slightly increased; if it cuts too easily, the current is reduced. After a groove of the contemplated length has been burned, the knife is made to return to the groove of the female shank by turning the screw (wheel) to the opposite side. It is wise, according to Bottini, slightly to increase the current for this procedure. Now the current is broken, and the beak of the instrument turned downward and pulled gently forward, so as to hug the prostate. Then, according to necessity, one or two more grooves are made through the body of the prostate in the same way as just described.¹ If during the operation an assistant auscultates the suprapubic region, he will distinctly hear the noise which is pro-

¹ In my last two operations I have primarily divided the body of the prostate in its median and lateral lobes and then added a short anterior incision. The posterior (sagittal) incision, down to the floor of the bladder, is certainly the most important one.

duced by the burning. Sometimes this can be heard even by bringing the ear near the abdomen. The two or three grooves thus having been cut, the current is turned off and the instrument gently extracted from the bladder. The operation is finished. According to the number and length of the grooves cut, it lasts from two to five minutes. The inconvenience caused the patient during and after the operation is exceedingly slight. A physician operated upon by Bottini without cocaine pronounced the procedure less painful than the instillation of nitrate of silver into the prostatic urethra. Two of Freudenberg's patients stated that the operation had caused them less pain than the preceding cystoscopy. Another said that he preferred it to the examination with the stone searcher.

Soon after the operation most of the patients complain of a burning sensation when commencing to pass water. They may get up right after the operation in order to urinate, and can be permitted to be permanently out of bed on the second day, the general reaction of the operation being in most instances almost *nil*. If the bladder has been carefully irrigated, the patients will rarely develop any rise in temperature; bleeding, if there be any at all, is generally of minimal amount. The urine passed during the first night following the operation is often macroscopically free from blood. In more than eighty cases of this kind, Bottini has not seen a single serious hemorrhage. For this reason he warns against the use of a permanent catheter. Thus the after-treatment is comparatively very simple. If necessary, the bladder should be washed out daily in order to improve the present cystitis—best with a cold solution, as this will strengthen the contractility of the detrusor muscle. This latter may also be accomplished with the help of electricity. Strychnine internally is advisable. It is a matter of course that the detrusor muscle regains its full power of contractility only in course of time.

As regards annoying accidents during or after operation, Czerny once had a bend in the platinum knife which made the extraction of the instrument slightly difficult. This occurrence has been referred to above.

Kümmel, who has operated with the help of the cauterizator in a number of cases of urinary retention, once saw a rather serious hemorrhage on account of the patient having removed the permanent catheter which had been introduced. In order to stop the

hemorrhage he then performed suprapubic cystotomy. The patient died a few days later. (As just stated, Bottini warns against the use of a permanent catheter.)

As Bottini maintains, Czerny as well as Kümmel made use of inferior batteries, which not only are unreliable in their effect, but do not heat the knife sufficiently. Freudenberg explains Czerny's experience as being caused by turning the instrument (Bottini's original) when the heated platinum knife is doing its work (see above). It certainly is of greatest importance that a sufficiently powerful and absolutely reliable battery with a rheostat attached be used. As far as I have seen, the storage batteries for sale here do not well answer this purpose; they are not made to bring to red heat so large and thick a platinum knife as the one needed in this operation.¹ At present I use a battery manufactured by Hirschmann, of Berlin. It is, however, so heavy as to require two men to carry it. Freudenberg recommends a battery with an ampere-meter, made, according to his design, by Kiss, of Berlin. This is the same concern that has brought the improved incisor upon the market. The amperemeter enables one to know at every moment the exact strength of the current, and thus the degree of heat attained by the knife. I have just brought out a useful small storage battery for Bottini's operation, with the kind assistance of the Kny-Scheerer Company, 17 Park Place, New York City. It is not heavy and can be easily transported.

L. Casper, of Berlin, when discussing² Freudenberg's last paper on this subject, "Zur Bottini'schen Operation bei Prostatahypertrophie,"³ stated that the dangers connected with this procedure were hemorrhage, dribbling, and infection.

Freudenberg saw a secondary hemorrhage in three of his cases. In one of these the bleeding ceased after a permanent catheter had been put in for three days. Here the occurrence was later explained by the discharge of a piece of the prostate, of the shape and size of a split almond. This portion had been cut off from the right lateral lobe, which projected into the bladder—an accident which had never been observed before. In his other two cases the hemorrhage was not at all alarming. In watching these

¹ A friend of mine has informed me recently that the Edison-Laland Company is making a battery which would probably do good work.

² *Berliner klinische Wochenschrift*, 1897, No. 45, p. 990.

³ Read before the Berlin Medical Society, October 20, 1897; *Berliner klinische Wochenschrift*, 1897, No. 46, p. 1002.

patients after the operation, one ought to be mindful of the fact that hæmaturia generally makes a more serious impression than is warranted by the amount of blood actually lost. Freudenberg believes that the danger of hemorrhage greatly depends upon the operator. This is certainly true. It is self-understood that Bottini's operation, small and easy as it may appear at the first glance, also has its technique. And this technique in all its details must be mastered by practical experience. The result of the operation largely depends upon the proper observation and carrying out of quite a number of details. The length, direction, and number of cuts, the rapidity with which they are made, the amount of current used for heating the knife—all deserve to be mentioned in this connection.

Freudenberg also saw dribbling in a few cases after operation, but in no instance was it marked or did it become permanent.

This observation corresponds with the experience of Bottini, who informed Freudenberg, upon the latter's query, that he never saw enuresis as a result of his operations. Freudenberg, on the other hand, observed enuresis to disappear in three cases when it had been present before the operation. With reference to avoiding this occurrence, he also emphasized the necessity of sufficient practical experience. He believes that enuresis will probably set in if the grooves are burnt through the prostate into the membranous urethra or very close to the latter.

The danger of infection, as far as it might be carried into the bladder by the operation itself, has been eliminated since Freudenberg has completed his improved incisor, which can be sterilized by boiling.

As is natural, a number of objections against Bottini's operation have been raised in the course of time. Webb,¹ McGill,² and others stated that the operation was dangerous. However, Bottini has had but two deaths in a series of more than eighty cases—certainly a minimal death-rate for an operation which is almost exclusively performed on old and decrepit patients; and these two deaths occurred before the cooling device had been added to the cauterizator.

¹ "Operative Procedures in Hypertrophy of the Prostate," *Medical News*, January, 1889, p. 70.

² *Verhandlungen des X. internationalen medicinischen Congresses, Berlin, 1890, Abth. vii., p. 85.*

Freudenberg lost two patients ; one died from embolism into the lungs—an exceptional experience after Bottini's operation so far; the other, a very weak and much-reduced patient, seventy-seven and one-half years of age, died twenty-four days after—better, in spite of the operation.

McGill further believes that the operation could prove of benefit in but exceptional cases, because the real condition of the prostate could be properly made out only with the finger in the bladder or by direct inspection. Nitze's cystoscope refuted this objection as soon as it was raised.

Nitze¹ believed that the separated parts of the prostate would grow together again, and thus cause a recurrence of the trouble. But, as Freudenberg insists, the act of micturition alone, which each time presses apart the walls of the grooves, renders reunion of the divided parts impossible. The same effect is probably produced by the tonus of the external sphincter muscle, the central fibres of which are divided by the operation. In the main, however, practical experience has proven the contrary of Nitze's objection. Bottini, who by his writings impresses one as being a very careful, straightforward, and upright observer, has never seen a recurrence of the trouble during twenty-two years of actual practical experience.

In perusing the literature of Bottini's operation, I find that so far only a few authors have tried this method beside Bottini, who, as stated before, has operated in more than eighty cases. Up to 1890 Bruce Clark was the only one who reported a successful case. He made use of the cauterizator. When discussing Bottini's paper, read before the Tenth International Medical Congress, at Berlin, in 1890, Clark stated² that this patient was still alive, could urinate without difficulty, and had gotten rid of his catheter. Without giving further details, he added that he never since had a similar result. How many cases this "never since" comprises remains doubtful. He certainly did not make use of a sufficiently strong current, for he himself says that "the current which I employed was a much weaker one" (than that of Bottini).

H. Kümmel, of Hamburg,³ has operated with the cauterizator

¹ *Centralblatt für die Krankheiten der Harn- und Sexual-Organen*, Bd. viii. p. 171.

² *Verhandlungen des X. internationalen medicinischen Congresses*, Berlin, 1890, Abth. vii. pp. 95, 96.

³ *Berliner Klinik*, August, 1895, p. 8.

on a number of patients with hypertrophy of the prostate and retention, and is well satisfied with his results.

V. Czerny, of Heidelberg, has used the incisor five or six times,¹ and, although he had a very inferior battery, has never noticed an ill result, but in the majority of cases a marked improvement—spontaneous micturition, or at least easier introduction of the catheter. He remarked last year that Bottini's operation deserves more attention than it has hitherto received.

Watson² states that he has had some experience with Bottini's method. He wants it reserved for cases with a hypertrophied median lobe.

L. Casper³ has done the operation seven times on six patients—twice with satisfaction, three times with quite a good result, the sixth case being of too recent date to admit of drawing conclusions. He feels so much encouraged that he will continue to use the method.

Next to Bottini, Freudenberg has had the most extensive experience. He at first published five cases in which he operated with Bottini's incisor.⁴ Of three of his patients who had suffered for months with complete urinary retention, one—who was operated upon twice, six days intervening—commenced to pass his water on the tenth and fourth days respectively after the operation; the two others began to void their urine spontaneously three and four hours after the operation. In a second group, comprising two patients who still were able to pass water, but had to urinate every twenty or thirty minutes with a great deal of pain if they did not catheterize themselves, the operation had a very favorable result with regard to the frequency of micturition. All of the five patients have gotten rid of the catheter; all have materially gained in weight and improved in general health; two of them—one a patient of eighty-one, the other sixty-seven years of age—who were in a deplorable condition before the operation, were evidently saved by the interference.

When demonstrating his last patient thus operated upon, before the Berlin Medical Society, October 20, 1897, Freudenberg mentioned that he had performed Bottini's operation eighteen times on

¹ Deutsche medicinische Wochenschrift, 1896, No. 16, p. 248.

² Report of the International Medical Congress at Moscow, 1897, afternoon meeting of August 21.

³ Berliner klinische Wochenschrift, 1897, No. 45, p. 990.

⁴ Ibid., No. 15.

fifteen patients; that he had always used the incisor, and three times his modification of the original instrument, to his greatest satisfaction. The case then presented is of such importance that I will here briefly append the history.

The patient, sixty-three years of age, had been a slave to the catheter on account of complete urinary retention for the last three years and a half. On June 5, 1894, both his testicles had been removed by Casper, of Berlin. The retention remained unimproved. Three years later the patient still had to catheterize himself four or five times in twenty-four hours. In spite of regular, careful irrigation of the bladder, some vesical catarrh was always present. The prostate was very soft and bulged into the rectum; the upper end could not be reached with the finger. On April 22, 1897, almost three years after castration, Freudenberg performed Bottini's galvano-caustic radical operation on this patient. He burnt three grooves—one directly backward, three centimetres long; one of the same length through the left lateral lobe; and one, two centimetres long, anteriorly. Five and one-half hours after this operation the patient commenced to void his urine spontaneously; ten or twelve days later he voluntarily emptied his bladder almost completely, and after May 31st, or thirty-four days after the operation, the catheter was not used any more. Six months later the patient urinated in a good stream without any difficulty six or eight times in twenty-four hours, including once during the night. The urine had become perfectly clear. This improvement of the affection of the bladder had taken place without the use of strychnine, electricity, or cold intravesical douches. The patient had taken salol and urotropin internally. He had also lost his former constipation—an observation made by Freudenberg a number of times in patients on whom he had done Bottini's operation. The patient had gained seven pounds, although he had been quite stout before. He enjoyed life and regretted the loss of his testicles.

Bottini¹ reported a similar case, in which vasectomy had been done before, also without improving the bladder function. His operation cured the patient.

These cases speak for themselves. They prove beyond a doubt that the effect of Bottini's operation means the successful over-

¹ *La Clinica Chirurgica*, 1897, No. 4.

coming of the mechanical obstruction offered to the outflow of urine by the hypertrophied prostate. They also refute Lenander's (Upsala) explanation as to the effect of Bottini's operation,¹ viz., that the cautery knife burns the caput gallinaginis, and thereby destroys the ejaculatory ducts, also the ganglia and nerves which run to the seminal vesicles and the vasa deferentia; with other words, that Bottini's operation means about the same as the resection of the vas deferens.

My personal experience so far is very limited. I have operated three times on two patients; once with Bottini's and twice with Freudenberg's improved incisor (at time of publication, four times on three patients, three times with Freudenberg's instrument). Both men were still able to pass water, but urinated, always with a great deal of pain, every twenty or thirty minutes day and night. Both had unilateral or bilateral pyelitis and purulent catarrh of the bladder; their prostates were very soft. They had been treated by a number of doctors before.

In the first patient, fifty-eight years old, I have done the operation twice at the German Hospital, on October 7² and December 18, 1897. (The long interval was due to the delay in the arrival of a suitable battery from abroad.) The patient had, as made out by rectal palpation, a very small prostate—so small that one might have with propriety made the diagnosis of "prostatisme vésicale" (Guyon). But the gentle exploration of the interior of the bladder with the stone searcher demonstrated an enlarged gland, and the cystoscope showed the prostate bulging into the bladder, and the internal urethral fold irregularly curved; there was no median lobe. All clinical symptoms generally found in prostatics were well defined. Voluntary urination, 25 c.c.; residual urine, 300 c.c. When the bladder was emptied he had excruciating pain. For this reason I put him under general anæsthesia for both operations (Schleich's solution No. 1). I satisfied myself that the interference is a simple one for the doctor who is used to doing intravesical instrumentation. I was astonished to note how easily the prostatic tissue could be penetrated; it appeared to be extremely soft in this case. Although I had carefully gauged the heating of the knife before introducing the instrument, and al-

¹ Centralblatt f. Chirurgie, 1897, No. 22.

² This seems to have been the first Bottini operation on this side of the ocean. I did not find a single case previously reported in American medical literature.

though my assistants on auscultating the suprapubic region were sure to hear the noise of the cautery, I am under the impression that at the first operation, October 7th, I had not heated the platinum knife sufficiently (I had omitted to test the heated knife first on a piece of moist aseptic gauze), and that I cut the grooves too fast (a great deal of unburnt prostatic tissue adhered to the knife when the instrument was removed). At that time my storage battery was an unsatisfactory one. The operation itself (three grooves, 2.5, 2.5, and 1 cm., were cut) had lasted scarcely five minutes; there were no ill after-effects. The patient was up and about the next day. At his request he was soon discharged. Six weeks later he urinated just as often as before the operation, but without any pain. Ten weeks after the operation he passed water not quite so often as before during the day; at nights, only three or four times. The amount of residual urine was unchanged (15:280 c.c.). My proposition, which I had also made before the operation—namely, to draw off the residual urine—was again refused on account of the pain that set in when the bladder was emptied. On December 18, 1897, a second operation was performed with Freudenberg's modified incisor and a storage battery from Berlin. The patient again stood the operation well, and was up on the following day. Being opposed to subsequent local treatment, he left the hospital a few days later.

On February 16, 1898, I saw him at my office for the first time after the operation, and was greatly pleased to get from him the following report: A few days after the operation partial incontinence (dribbling) set in, more pronounced during sleep. This lasted two weeks. From that time on improvement has been gradual and continuous. To-day the patient does not experience any pain whatsoever; urinates three or four times during the day, twice during the night; amount each time about six or seven ounces, which is passed in the course of three or four minutes. For three weeks past he has been at work at his former occupation; he has gained in weight. When at my office he declared he had no desire to urinate, but I made him do so, nevertheless. He passed 20 c.c. (residual urine, 180 c.c.). The patient pronounced the small quantity passed an exceptional occurrence. Certainly we have a right to call his condition to-day much improved.

The amelioration of the different symptoms in this case is entirely due to Bottini's operation, because the patient did not un-

dergo any after-treatment whatsoever. The few vesical irrigations carried out at the hospital after the operations, also during November at my office, made him decidedly worse. I must confess I had not expected so gratifying a result in this case, and therefore also feel very hopeful as to the future of this method of operation. The urine at present is acid, but very turbid. I have urged the patient now to undergo local treatment. I shall not fail to report on the progress of this case after some time.

My second patient, a man of seventy-three years, was in a deplorable condition when he came under my care. Residual urine, 10 : 160 c.c. Prostate not large and very soft on rectal palpation, upper border could be reached; but found with the searcher to be considerably hypertrophied. Cystoscopy: Markedly trabecular bladder; diverticulum in right part of fundus; no stone; no enlarged median lobe; body of 'gland distinctly bulging inward. December 23, 1897, after preliminary careful irrigation, three cuts under cocaine—posteriorly and to the right, 3 cm.; anteriorly, 1.5 cm. No subsequent hemorrhage, no fever; patient up on the following day. Until January 8th there was no improvement; the patient then entered another hospital. Meanwhile he has died, without having been benefited by the operation.

Since reading this paper at Albany I have done Bottini's operation on a third patient, sixty-four years of age, who had suffered from increased frequency of micturition and repeated hæmaturia, also from catarrh of the bladder and bilateral pyelitis during the last two years. The patient died thirty hours after the operation, with very high temperature and a failing heart (acute sepsis [?]). I deem the case of great importance, and will, therefore here append its history.

The patient was first seen by me on December 13, 1897. He then stated that one year ago, when in the northern part of the State, he contracted a cold, and for the first time passed blood on urinating. He was brought to a near-by city, where he was put to bed and treated by a doctor. He soon returned to his home in New York. During the hot summer months hæmaturia returned twice. After the last attack a doctor introduced a searcher into the bladder. The answer was bilateral epididymitis. On examination I found the patient to be greatly reduced, pale, and nervous; the epididymis on either side was much enlarged and painful. One hundred and fifty cubic centimetres of urine were passed vol-

untarily; residual urine, 450 c.c. The urine was turbid, contained 1 per cent. of albumin, no sugar, a considerable amount of pus, a moderate amount of mucus, hyaline casts, and cells of all layers of the bladder, also groups from the renal pelvis. The daily excretion of urea and chlorides was not quite up to the normal. The prostate was soft, large, bulging into the rectum; its upper end could not be reached with the finger. The region of both kidneys proved sensitive on pressure. The patient's stomach was constantly upset; he had not taken any solid food for some weeks, and had had frequent vomiting. Cystoscopy (December 20, 1897) was very difficult, on account of hemorrhage; Nitze's irrigating cystoscope was used. I got only one good glance at the interior of the bladder, and saw a very pronounced trabecular condition; no stone; median lobe(?).

During the subsequent weeks I washed out the bladder very carefully under aseptic precautions, every second or third day, at my office, and put the patient on increasing doses of urotropin. The condition of his bladder improved, but, of course, not that of his kidneys. I frequently noticed that, when leaving the catheter *in situ* after careful flushing of the vesical viscus, a few drops of turbid urine would soon run out suddenly, although the irrigating fluid had before repeatedly returned perfectly clear. The clinical diagnosis of unilateral, perhaps bilateral, pyelitis was established beyond a doubt. The improvement of the vesical catarrh, however, did not materially improve the patient's general condition. He continued to urinate every thirty to ninety minutes day and night; the residual urine did not diminish. His stomach remained very irritable; he had absolute aversion against solid food. He lost continually in weight, despite the most tender nursing by his devoted wife. Something had to be done. After careful deliberation I resolved to do Bottini's operation. It was performed at the patient's home, on January 29, 1898. All instruments to be used were carefully sterilized according to standard rules, as was also Freudenberg's modification of Bottini's incisor, which, as mentioned above, can well be boiled; my own and the assistant's hands were disinfected in the same way as in other operations. After irrigation of the anterior urethra the urine was withdrawn from the bladder, and the posterior urethra and bladder were repeatedly washed out with a 2 per cent. sterile boric solution. During the latter part of this procedure the patient was brought under the

influence of Schleich's solution No. 1. Also in this case I thought it best to use general anæsthesia, on account of the painful, spasmodic contractions of the emptied bladder. At the same time I gauged the amount of current needed to make the knife red hot, tried its efficient working on a piece of moist sterile gauze, and properly arranged the irrigation through the cooling apparatus, which matter was in the hands of a trustworthy assistant. As soon as the irrigating water returned entirely clear and the bladder was emptied, the catheter was withdrawn. Next, Freudenberg's incisor was lubricated with glycerin and introduced. As I had raised the patient's hips on a hard pillow, thus putting him in a slightly recumbent posture,¹ it was not difficult to make the instrument enter the bladder, although the latter was entirely empty. Three grooves were cut—one posteriorly in the median line, 3.5 cm. long; another through the right lateral lobe, of the same length; and a third one, 1.5 cm. long, toward the front. Then the instrument was withdrawn and the patient brought to bed. The whole procedure had lasted not longer than five or six minutes. The operation was completed at 4 P.M. The patient was awake about five minutes later. There was a little bleeding from the urethra. It came from the external meatus, which was rather narrow. The same had been noted when I had performed cystoscopy on this patient. A nurse was put at his side.

Ten hours after the operation, at 2 A.M., January 30th, I received a report from the nurse that the patient, at 1 A.M., had had a severe chill, lasting about thirty-five minutes; that the temperature, which previously had been 99° F., had risen to 103.8° F.; and that the pulse, which had been 80 before, was 122. At 11 P.M., seven hours after the operation, he had urinated about three ounces, slightly tinged with blood, in the recumbent posture—a procedure which had not been possible within the last year. Since the chill he had been rather restless, but had very little pain; after a while he seemed to become delirious.

When I arrived at the patient's home at 2.45 A.M., I found a colleague at his bedside, who reported that he had been obliged to administer one-fourth grain of morphine, on account of the sudden

¹ Such a posture is of great value. It facilitates the introduction of the instrument into the empty viscus; the region of the prostate being more elevated than the fundus of the bladder, the small amount of urine which will descend from the kidneys, during the short operation, will run into the fundus; thus the field of operation is kept dry.

wildly delirious condition of the patient, who now rested on his back quietly in profound sleep. I at once made the necessary preparations for an aseptic catheterization and irrigation of the bladder. I withdrew 350 c.c. of a slightly sanguinolent urine of alkaline odor. Upon irrigation the fluid soon returned absolutely clear. I was satisfied that there was no hemorrhage coming from the prostate gland. At 3.30 A.M. the patient's temperature was 106.8° F.; pulse, 140. We then at once started with hypodermic stimulation and rectal injections of hot saline solution with whiskey. Later in the day we added continued rectal irrigation (Kemp) with saline solution of 105° F., to which was added salicylate of sodium, so as to make a 1 per cent. solution of the same. On catheterization at 12 M. the bladder was found to contain only half an ounce of urine. There was no hemorrhage. But, in spite of all efforts, the temperature did not come down, nor did the heart respond to stimulation. The patient died at 10 P.M., without having regained consciousness.

To my regret, permission for a post-mortem examination could not be obtained.

In reviewing this case I cannot make any other diagnosis of the immediate cause of death than that of foudroyant sepsis, although the patient had a moist tongue until his death. And this sepsis had occurred in spite of the most careful aseptic work before, during, and after the operation.

The other diagnosis which might come into consideration as the immediate cause of death is embolism of the lungs, which, as stated above, has been observed in another case subjected to Bottini's operation by Freudenberg. However, a very able medical man, who saw the patient with me, on auscultation could not find any symptoms that would justify such an assumption. There were also missing the rapid respiration, the cough, etc.

Certainly this case gives a great deal to think about. Two questions principally present themselves for discussion:

1. Was it correct to perform Bottini's operation on this patient at once? Would it not perhaps have been better first to have insisted upon resection of the vasa deferentia or of the principal vessels and nerves of the spermatic cord (Albarran's angio-neurectomy), especially in view of the bilateral chronic epididymitis, before resorting to a direct interference with the gland?

2. If the patient really died of acute sepsis, where had been the point of entrance of the streptococci?

With reference to the first of the two questions, future experience must decide whether we are justified in always giving Bottini's operation the first place when trying to bring radical relief to a patient suffering from hypertrophied prostate and its sequela. At present I do not believe that Bottini's operation, as Freudenberg seems inclined to think, should always be our first choice. Perhaps more extended experience may show it to be more advisable in all cases when pyelitis is surely present, when the prostate is soft and easily bleeding, when the patient's condition is run down and the urethra and bladder are not used to frequent instrumentation,¹ first to resect the vasa deferentia (or do Albarran's operation), and await the result of this operation, provided waiting is permissible, and then, if necessary, add Bottini's operation.

According to present views the effect of the several operations mentioned, as also of castration, is to be found in a depletion of the enlarged, intimately connected, venous plexuses of the prostate, of the neck and of the wall of the bladder. And this depletion is due² to direct or to reflex irritation of vasomotor sympathetic fibres that were affected by the operation and now produce a contraction of the vascular walls. We can more or less rely upon this result of the operation. If, after this much has been achieved, the patient should still be unable to pass urine voluntarily or in a sufficient quantity, the galvano-caustic division of the prostate, as stated above, should be added instead of castration. The patient will then have more assurance that he will not succumb to an embolism of the lungs—one of the two principal dangers, as it seems, of Bottini's operation. It is reasonable to believe that such embolism is to be traced to the thrombi made by the galvano-caustic knife in the large veins of the prostatic plexus. Although so far this occurrence has been observed and proved by post-mortem examination but once (Freudenberg), we must admit the possibility of a repetition. The patient will, furthermore, not be deprived of having intercourse or be exposed to the possible consequences of castration (mental disturbance, etc.).³

¹ I specially emphasize these points. The remarks following refer to such patients only.

² Hoffmann: "Beiträge zur operativen Behandlung der Prostatahypertrophie," *Beiträge zur klinischen Chirurgie*, Band xix., Heft 8, p. 541.

³ In view of the rather doubtful permanent results of vasectomy (cf. l. c.), it seems to me

Question No. 2: Where has been the point of entrance for the streptococci in the case just related? Can we avoid at all, and, if so, how can we avoid sepsis, the second danger, in my opinion, connected with Bottini's operation?

It is evident that a trabecular bladder of a prostatic cannot be properly disinfected by continued irrigation. It is obvious that vesical irrigation does not influence the renal pelvis. The latter can be prepared for the operation by internal medication only—urotropin and salol. The fear, therefore, that a wound made within a bladder that cannot be reliably disinfected and remains a closed viscus after the operation—a viscus that is not drained as we are used to do after suprapubic or perineal incision—I say, the fear that such a wound may be the direct cause of infection to the patient must certainly be entertained. I believe that this danger does exist, although to but a limited extent. The eschar produced by the red-hot Bottini knife will generally be very slowly pushed off, certainly not before the fourth or fifth day, and this pushing off is caused by the reaction of the surrounding living tissues, namely, granulation. We all know that, if not irritated, such a granulating surface forms the best barrier against infection, and not the entrance for infectious micro-organisms.

But it should not be forgotten that a thrombus is formed in the prostatic veins by the cautery. Prostatic patients with pyelitis often are in a state of chronic sepsis (I am sure my patient was in that condition)—that is to say, streptococci circulate within their blood, but are not virulent enough to produce acute general infection; but as soon as traumatism takes place the locus minoris resistentiæ is established. In the coagulated blood, their best culture medium, the streptococci or the bacterium coli commune rapidly multiply and become more virulent. The proximal pole of the thrombus is the place whence absorption takes place and fatal systemic infection sets in.

Nevertheless I believe that in a case of death from sepsis as a result of Bottini's operation the infection will oftener make its way through the kidney or kidneys than through the wounds of the prostate gland. In the case of an old prostatic with secondary dilatation of the ureters and renal pelvis from back pressure, the bladder and ureters and the renal pelvis or pelves are, in a physical

to be a good plan to do Bottini's operation in every one of these cases, one to two weeks after vasectomy.

sense, but one cavity; infected urine, if retained, easily reaches the kidneys. And even if ureters and renal pelves have not become chronically distended by the prostatic obstruction, the infection of these patients by way of the kidney is possible. The interesting experiments of Lewin and Goldschmidt¹ have demonstrated beyond a doubt that direct, we might say, physical, communication exists between bladder and heart in an opposite direction to that of the current of the blood. According to these experiments, soluble material (colored fluid, ultramarine) and insoluble material (air) can reach the right ventricle by way of the renal vein and inferior vena cava. Under certain conditions the ureteral mouth of even a normal vesical viscus can suddenly gape, its normal closure toward the kidney can become insufficient. By means of the difference in pressure between the bladder and renal pelvis, also of the antiperistaltic contraction of the ureter, the soluble as well as insoluble matter can now ascend from the bladder to the pelvis of the kidney, whence it enters the lymphatics, the veins, and the uriniferous tubules, and is conveyed to the right ventricle. Then the current of blood transports the foreign substance into the other organs, principally lungs and liver.

By these experiments a path has been shown by which foreign substances, and much more readily, of course, infectious micro-organisms, may enter the general circulation. The experiments also tend to explain "the sudden appearance of a general systemic infection" after intravesical interference, the cause of the occurrence of which, in a pathologic sense, has hitherto been rather obscure. That such a retrograde wave within the uropoietic system is all the more apt to set in, if the cavities and canals of the latter are in a state of pathologic distention, is obvious.

I, therefore, am of the opinion that if my patient did die of sepsis, the infection took place in the manner of Lewin's experiments. This taken for granted, one question yet has to be answered: Why did this septic infection set in after Bottini's operation? Why not sooner—for instance, after ordinary catheterization or after cystoscopy? I shall not venture to try and explain this, as it could be done only on basis of further hypotheses. But we

¹ L. Lewin and H. Goldschmidt: "Kurze Mittheilung einer Beobachtung aus dem Gebiete der Nieren-Pathologie," Deutsche medicinische Wochenschrift, 1897, No. 38, p. 601. L. Lewin: "Der Uebertritt von festen Körpern und Luft aus der Blase in die Nieren und in entferntere Körper-Organen," Deutsche medicinische Wochenschrift, 1897, No. 52, p. 825.

shall perhaps be better able to understand it by assuming that in dividing the prostate down to the floor of the bladder and near to the membranous portion of the urethra, the galvano-cautery struck a small inflamed focus within the prostatic tissue, which contained especially virulent micro-organisms; and that these, added to the other inhabitants of the bladder and renal pelves, sufficed to produce the explosion.

Further, after all other instrumental manipulations within the bladder—such as, for instance, cystoscopy, litholapaxy, etc.—we make it a rule, so as to have done our share to avoid infection, to irrigate the urethra and bladder after the interference, and let the patient, if possible, spontaneously void the injected fluid; while in Bottini's operation, having finished the work, we extract the incisor and stop right there. Now I believe that the early withdrawal of 200 or 300 c.c. of urine (which certainly is not sterile) from the bladder, and aseptic irrigation of this viscus a few hours after the operation, might possibly avert to a great extent the danger imminent from this source.

I have tried to explain the occurrence of the septic infection in my patient somewhat exhaustively, for the sake of avoiding as much as possible similar experiences in the future. That I thought of it a great deal can be imagined. In order to be just, however, the fact must be emphasized that Bottini has not lost a single case from sepsis, nor has Freudenberg, Czerny, or Kummel; and their practical experience combined embraces over one hundred patients. My case evidently is an exceptional one; but it shows that Bottini's operation also has its deaths, and that it shares the risks involved in all the other operative methods so far proposed for the radical treatment of this grave trouble.

What I am anxiously waiting for now is a patient with complete retention, one who has been entirely or almost entirely a catheter slave for a long period. In perusing the literature of the subject, we find that it is this class of cases which has derived the greatest benefit from Bottini's operation. By means of the frequent slight reinfection, which almost always occurs when patients catheterize themselves, no matter how careful they may be, their system seems to have acquired a kind of immunity against an acute septic infection of the streptococci and other pathogenic micro-organisms which inhabit the bladder. Even with a pyelitis these patients will probably much better stand direct interference than those who

have been only occasionally subjected to local treatment by their physicians.

I am sure we shall learn to select prostatic cases which are especially adapted for Bottini's operation ; I also believe that we shall learn in course of time to pick out such cases as should be primarily subjected to operations on the spermatic cords or to castration, eventually also to prostatectomy. Much will have to be learned yet in that respect.

But certainly we can to-day say of Bottini's operation that it leaves the important anatomical parts absolutely intact, without destroying tissues which for certain periods of the life of the male subject are of great importance (vasa deferentia, testicles), and without sharing, to a great extent at least, the dangers of other radical operations (ligation of internal iliacs, total extirpation). It furthermore certainly appeals to our common sense that, if the mechanical division of a mechanical obstruction can be rendered a permanent one in a comparatively safe manner with the help of absolutely reliable instruments, the method must be a good one.

It, therefore, seems to me that Bottini's operation decidedly deserves to be given a careful and unbiased test. Should it really prove to be of such great value in the greater number of cases of this dreadful, so frequently in its remote consequences, fatal disease, it will become our duty to give this operation not only a firm place, but one of the first places on the step-ladder of the multitude of operations so far devised for the radical cure of hypertrophy of the prostate gland.

X. DISCUSSION ON THE MANAGEMENT OF HYPERTROPHY OF THE PROSTATE GLAND AND ITS COMPLICATIONS.

3. CASTRATION AS A MEANS OF RELIEF FOR OBSTRUCTIVE HYPERTROPHY OF THE PROSTATE.

BY LEWIS STEPHEN PILCHER, M.D.,
NEW YORK.

IN June, 1896, I published in the *Annals of Surgery* the results of the cases which had been under my personal care in which removal of the testicles or section of the vasa deferentia had been resorted to for the relief of obstructive hypertrophy of the

prostate. I was then able to report eight cases of castration and three of vasectomy. The amount of relief to the obstructive symptoms which had followed in these cases was very notable, and seemed to justify the conclusion that in these procedures surgery had gained a most valuable resource in dealing with conditions that were not only harassing, painful, and dangerous, but often intractable to any available practicable means of treatment before suggested. In the eighteen months that have since elapsed there have been two additional cases in which I have resorted to castration; these I desire to now add to the record :

CASE IX.—R. J. C., aged seventy-two years. Four months before he had been subjected to suprapubic cystotomy and double vasectomy on account of complete prostatic obstruction not relievable by catheter. At the end of two weeks he found himself able to urinate *per urethram*, after which the suprapubic wound rapidly closed, and by the sixth week was soundly healed and normal urination seemed restored. This improvement, however, proved to be transient, and marked obstructive symptoms again developed, becoming gradually more troublesome, requiring the frequent use of a catheter, which was difficult and painful, until August 12, 1896, when he was subjected to castration. Smooth recovery from the operation followed, with rapid amelioration of his obstructive symptoms, until by the end of four months thereafter he was performing his urinary functions normally, and his general health and strength had become quite restored.

CASE X.—B. C., aged seventy-five years. A robust old man, a laborer, who had always enjoyed good health, with the exception, of late years, of some increase in frequency of urination. Suddenly, complete retention developed, which, after ten days of systematic catheterization and rest in bed, still persisted. The passage of a suitable catheter was not difficult, but the retention remained complete, and rectal examination showed considerable enlargement of the prostate, the right lobe being the larger. The degree of intelligence and the social state of the man were such as to preclude the idea of teaching him to use a catheter in a cleanly way, and any attempt in that line it was believed would have been the beginning of infective cystitis. He readily acceded, however, to the suggestion to have the testes removed. This was accordingly done November 8, 1897. Uncomplicated healing, without any mental disturbance, followed the operation. No change in his condition of urinary obstruction was noted until the twelfth day thereafter, when he twice during the day voluntarily voided a little urine, but from fifteen to eighteen ounces of residual urine still persisted. This was still his condition one month after operation, but from this time a gradually increasing freedom in voluntary urination was noted until December 23d, six weeks after the castration, he was urinating with apparently normal freedom, and the introduction of a catheter immediately after urination showed that there were but two ounces of residual urine.

The favorable immediate results obtained in these two cases, now reported, are similar to those experienced in the preceding eight, and are like those met with in a very large number of cases which have been reported by others.

There has been no mortality, or even suggestion of danger of such an event, connected with the operations in these cases, although Cabot, writing in 1896,¹ found a mortality of 19.4 per cent. to have attended the cases collected by him from various sources (203 cases, 39 deaths). But, obviously, it is one thing that death should follow an operation, quite another thing that death should be due to the operation !

It would, perhaps, be a more just interpretation of the facts to say that in a considerable proportion of the reported cases—about 20 per cent.—the conditions preceding the operation had been such as to entail a speedily fatal result, notwithstanding the operation, not denying the fact that probably in some instances the inevitable end had been accelerated by it, for the remark is also a just one, that a serious pathological condition, in the course of which an operation is done, is prone to be aggravated by such operation, if by it the condition is not at once greatly relieved.

Castration done on a patient moribund with uræmia ; castration done on a patient profoundly prostrated by sepsis from a suppurating prostate or kidney, or necrotic bladder ; castration done on a patient with over-distended bladder, with pressure effects upon the kidneys ; castration done on a patient worn out with the suffering caused by the presence of a calculus in the bladder, will, if unaccompanied by the measures required for the immediate relief of these urgent conditions, be productive only of harm. It is quite evident that castration should not be resorted to in such cases as these mentioned until after the pressing emergency has been relieved by the use of appropriate measures, and a favorable state has been created for the introduction of a procedure which may gradually, and possibly only after the lapse of weeks, induce a subsidence of the prostatic obstruction. The value of such a course is strikingly illustrated in Cases VI. and IX. of my series, in each of which by suprapubic cystotomy free bladder drainage was provided for and maintained for some weeks before resort was had to castration.

¹ *Annals of Surgery*, June, 1896.

Of more importance is the possible effect upon the mind and disposition of the man produced by withdrawing from him the special stimulus furnished to the economy by the glandular products of the testes. Acute mania, dementia, and gradual loss of vigor, causing the patient after a time to succumb to conditions which before the removal of the testes had been well borne, are the states which have been more especially ranked as fairly frequent sequelæ to the operation. The later history of castrated prostatics is, therefore, of special interest from this point of view. In my previous report I gave the details of one case in which a distinct tendency to dementia developed immediately after the operation (Case IV.) in a man seventy-two years of age, with an atonied overdilated bladder, dribbling at thirty-seven ounces. At the end of three months, however, by which time the function of urination was being normally performed, his mental condition had greatly improved. His later condition is unknown to me. One man, sixty-eight years of age (Case III.) died of dysentery some months after castration. One man (Case X.) is of too recent date as *opéré* to have any late history. The remaining seven cases I have been able to follow, and their condition to-day, in brief, is as follows:

CASE I.—Time since castration, three years; present age, seventy-seven years; hale, hearty, and active physically and mentally. Still has five ounces of residual urine, which he evacuates with catheter night and morning; urinates spontaneously every two or three hours.

CASE II.—Time since castration, two and a half years; present age, fifty-eight years; a clergyman in charge of an important church; states that his physical vigor and his mental grasp have notably improved since operation. His originally long overdilated bladder dribbling, with sixty-four ounces, still halts with ten ounces of residual urine, requiring catheter for its removal.

CASE V.—Another clergyman. Time since castration, two and a quarter years; present age fifty-four years; still continues to preach with acceptability and to administer the affairs of his parish with prudence. Still has some residual urine and a chronic cystitis which requires the use of a catheter and daily irrigation of the bladder to keep under control. Reports that urination is now attended with more difficulty and pain than it was during the first year after the removal of the testes.

CASE VI.—Time since castration, two years; present age sixty-seven years; general health excellent; mental grasp undiminished; still attends actively to the affairs of an important business. His chief annoyance has been the frequent occurrence of uncomfortable flushes of heat, similar to those experienced by women at the time of the menopause.

CASE VII.—Time since castration, one and three-quarter years; present age, sixty-four years; in good health, sound mind, and free from all urinary disturbance.

CASE VIII.—Time since castration, one and three-quarter years; present age seventy-two years; in good health, sound mind, and free from all urinary disturbance.

CASE IX.—Time since castration, one and a half years; present age seventy-four years; is hearty and vigorous; fond of equestrian exercise, and manages with skill a spirited horse.

This completes the record of my personal experience to date. In these cases the relief from the special sufferings and difficulties incident to obstructive prostatic hypertrophy has been great, in some of them complete, and, with the lapse of time, has been increasingly positive. This relief has been secured by a procedure that has been free from pain, and has been attended with but little, if any, risk to life; the worst blur upon the record is the infliction of a few weeks of childishness upon one patient. The procedure is one that demands no special surgical experience, no elaborate *ménage*, nor peculiar or costly instruments for its proper performance. It seems to me that it has at least won a place for serious consideration whenever the problem of the relief of urinary obstruction due to prostatic hypertrophy is presented for discussion.

XI. DISCUSSION ON THE MANAGEMENT OF HYPERTROPHY OF THE PROSTATE GLAND AND ITS COMPLICATIONS.

4. STONE IN THE BLADDER, ASSOCIATED WITH HYPERTROPHY OF THE PROSTATE.

BY EDWARD L. KEYES, M.D.,
NEW YORK.

Six years ago,¹ through the courtesy of your invitation, "Stone in the Bladder" being the subject under discussion, I had the honor of joining in the debate, and to-day I am accorded a like privilege.

Then the centre of interest was the calculus, and in considering stone as the malady it became necessary to touch upon various complications, among others that by hypertrophy of the prostate.

¹ February, 1892.

To-day, on the other hand, hypertrophied prostate is the malady, and I have been asked to deal with that portion of the subject which relates to its complication by stone.

Under the circumstances it seems to be only logical, and in natural sequence, that out of the peroration of the former address I should construct an exordium for this one, especially since it is a fact that what was shadowed out as an impression in my mind at that time has in the intervening six years ripened into a conviction.

I then advocated litholapaxy whenever practicable; but, and this is the peroration to which I refer, I expressed my leaning toward a belief, even in the case of very small stone, when the prostatic condition is a main factor in the general morbid state, that it might be wise to insist on a cutting operation by the suprapubic route, prolonging the lithotomy into a prostatectomy, that thus the patient's necessity might be converted into the surgeon's opportunity. It is mainly in affirming this proposition that I shall consume the brief time allotted to me to-day.

When the surgeon is called upon to select a line of action in contemplating the double condition, hypertrophied prostate plus stone, he may well say to himself, "I do here perceive a divided duty," because, as a malady, stone in the bladder cannot be considered a single morbid entity. The stone plays a double rôle. While it undoubtedly aggravates the subjective symptoms for which the patient seeks relief, it is not of itself the cause of all these symptoms, when the prostate is also pathologically modified. Indeed, when the stone is phosphatic it is nothing more than an objective symptom of the catarrhal process in the bladder, due to the prostatic malady, and although the stone may and does mechanically intensify the subjective symptoms, pain and vesical irritability, and while its removal is imperative if a cure be aimed at, it is no more logical to expect a cure of the complex malady by removing one of its objective symptoms, the calculus, by crushing or cutting, than by removing one of its subjective symptoms, pain, by opium.

It is unnecessary here to more than mention the distinction between primary acid stone, forming in a bladder otherwise normal, and mechanically, after a time, lighting up catarrhal symptoms, and secondary phosphatic stone, itself a direct result of a catarrhal state of the vesical mucous membrane plus obstruction to urinary outflow. This distinction is to-day thoroughly understood and accepted.

But the question at once presents itself, granting that a phosphatic stone may be considered a symptom of other conditions and assigned a second place in deciding upon such remedial means as shall address themselves to the entire morbid state, yet what shall be our course when, although the prostate be enlarged, the stone is primary, uric acid or oxalate, and notably when the stone is quite small? Is the surgeon justified under such circumstances in subjecting his patient to a grave operation, lithotomy with or without prostatectomy, when the much less serious alternative, litholapaxy, might more safely encompass the necessity in so far as the calculus is concerned?

Now, it must be granted that, if the stone could be eliminated by some act of magic, the case would resolve itself into one of ordinary prostatic enlargement—to be treated upon its own merits—and therefore the question I have proposed may be answered by another, namely, can the stone be entirely removed without serious irritation due to the process of removal? And, secondly, if the stone can be so removed, will the result be generally satisfactory to the patient?

And this is the nucleus of the whole matter that I am called upon to consider.

I was already an active worker in the genito-urinary field when Bigelow, in 1878,¹ introduced litholapaxy to the world. I adopted the operation, added my public testimony to its value, became its earnest advocate, have performed it often, and now in my series of second hundred cases still indorse it boldly.

But a broadening experience has been and still is teaching me to curtail the field of its usefulness, and I no longer think that it is so generally applicable as I at one time believed it to be.

For this, as for any other operation, a certain judgment is necessary, not only in the selection of the case, but in the selection of the operator. For litholapaxy is clearly an operation in which special dexterity due to frequent performance counts for more than anything else. A general surgeon will perform a cystotomy, a lithotomy, a prostatectomy, as well as any other cutting operation. These acts are included in the field of general surgery. But this same general surgeon, however great his skill and his delicacy of touch, will not perform litholapaxy as well the fifth time he does it

¹ The American Journal of the Medical Sciences, January, 1878.

as the fiftieth time, whereas there will be no difference between his fifth and his fiftieth lithotomy, either in its performance or its result.

This fact I emphasized as long ago as 1880,¹ showing at that date the mortality of litholapaxy at the hands of operators who had reported five cases or less, to be over 9 per cent., while for those who had operated on more than five cases the mortality was less than 8 per cent. The brilliant reports of litholapaxy in skilled hands of late years, both as applied to children and adults all the world over—in India, Egypt, France, England, and America—go to show that litholapaxy in expert hands is only a little more serious an operation than passing a catheter.

Yet just here the questions upon which I have been harping again arise, Can even an experienced lithotritist remove the last fragments of the calculus in every case when the prostate is large? Secondly, if he could so remove it, would the patient be satisfactorily well? And I think I may answer both of these questions by an unqualified negative.

Neither the limits of my time nor your patience allow me to build up a justification of this answer by the citation of individual cases in detail, because I must use the time to crystallize what I have to say into the form of a practical suggestion. Suffice it to confess, I have in several instances, relying upon my confidence in litholapaxy, committed the error of attempting to remove a small stone complicating enlarged prostate in cases unsuited for that operation, with the result, whether the fragments were entirely removed or not, of aggravating the patient's condition, making lithotomy ultimately necessary—either at my own hands or, to my mortification, at those of another surgeon, not for the small fragments of stone that were left, but for the persistent aggravation of the subjective and catarrhal symptoms occasioned by the manœuvres of the lithotrite and tube, symptoms which ordinary surgical means proved unable to overcome on account of existing prostatic disease.

And I have equally a number of other cases illustrating that an entire removal of the stone without bruising the vesical neck—that is, the removal of the stone by suprapubic lithotomy—has not placed the patient in a satisfactory condition, although, of course,

¹ Rapid Lithotrity, with Evacuation. *The American Journal of the Medical Sciences*, April, 1880.

the improvement has been very considerable after the mechanical irritation caused by the stone has been taken away, and life, before intolerable, has become bearable.

My most notable case exemplifying this postulate is that of a gentleman, aged sixty-two years, worn out by suffering, from whom I removed eight years ago three phosphatic stones weighing an ounce and six drachms. One of the stones was encysted in the orifice of the ureter, and the consequent reflex irritation upon the kidney may be imagined.

This patient is well enough to-day. He attends to his duties, and is, on the whole, satisfied. He has to rely upon his catheter to void his urine, in itself not so grievous a result, but he has had a number of returns of opening of the wound above the pubes, which have annoyed him and required considerable treatment for their closure—openings which doubtless would not have occurred had the prostate been attended to when the door was opened through the bladder-wall for the removal of the stones.

I have another very striking case in point of a gentleman from the West, himself a German, who was unwilling to trust an American surgeon to treat his bladder symptoms, and went to his native land, where one of the most prominent surgeons of the day cut him above the pubes and took out a phosphatic stone. This patient was by no means cured. When the wound closed his symptoms returned. He visited me on two occasions from the West, for a re-opening of his fistula. I succeeded in closing it on both occasions, but had great difficulty in sweetening his bladder and getting him into catheter-life—which he objected to—a difficulty which would not have existed had his prostatic bar and third lobe been disposed of by the surgeon who cut him for stone. The necessity for catheter-life might have remained, but I believe the wound would not have reopened, and that catheter-life could have been more promptly and easily instituted had the granular sensitive lobe and bar been removed as well as the stone.

I ask you to listen to only one more case, and then I shall have illustrated the points upon which I propose to summarize.

Six and a half years ago I operated upon a gentleman in the sixties, a dreadful sufferer for many years, whom I found bedridden, passing urine resembling gruel, tortured by incessant pain night and day, semi-narcotized by opium. I cut him above the pubes, removed a phosphatic stone weighing 590 grammes and

with a wire *écraseur*, going as close to the neck of the bladder as I could, I removed a third lobe about an inch long and as large round as the little finger—the cause of all the trouble.

My patient struggled through a desperate suppression and recovered, gaining in a few months seventy pounds in weight, giving up his opium, holding his urine seven hours, voiding it spontaneously, and exulting in his cure; yet, although in this case an enormous third lobe had been removed, a slight bar remained and a little residual urine, which the patient neglected, and in one year after his first operation he came back with another stone—also phosphatic, and a modified reproduction of all his former symptoms.

My first operation had been practically one of emergency, and my hope for its success not great. I had had scruples about doing anything more than to take the stone away and put the bladder muscle at rest by drainage; but this long, finger-like lobe was too tempting for my surgical virtue to resist, and I snared it off, thus increasing the grade of operative severity and the patient's risk; but I did not still further increase it, as I should have done, to have made the operation technically perfect, by gouging out the bar and lowering the urethral floor at its beginning.

The result was natural. My patient, finding that he could urinate at will in a large stream without straining, and that he had no bladder symptoms, neglected to follow my injunction, and disregarded the small amount of residual urine that yet remained. He did not wash his bladder, and his stone returned. For this I cut him in the perineum, removing three drachms of phosphatic stone, and this time I cut down the prostatic bar well to the floor of the *bas-fond* and forced it to heal open by maintaining a large tube in place for a considerable time. This was five and a half years ago, and my patient writes me a few weeks since that he is perfectly well as to his bladder, which empties itself voluntarily down to the last drop. His intervals are normal and his stream ample. Frightened by his former experience, he still washes his bladder occasionally, but, since there is no residual urine, it is doubtful whether this precaution is necessary.

A contrast between the results of these two operations upon the same individual illustrates the point I am endeavoring to make. In this case, removing the stone, while it relieved, did not cure, nor did partial prostatectomy (ablation of the third lobe) cure; but

when the obstruction was removed, the bar cut down, the urethra lowered, and the bladder rendered capable of emptying itself entirely—although the rest of the prostate was still larger than normal—a cure was accomplished.

Cases on the other side of the picture are too numerous to justify citation. Any lithotritist of large experience can adduce a score, since they are of the most common occurrence; I mean cases in which the prostate being large—sometimes very large—the bladder being considerably atonied, or not, as the case may be, the conditions are such that the prostatic sinus will tolerate instrumentation without serious revolt; the bar is absent or small, and the *bas-fond* not so deep as to make it mechanically impossible for the shorter male blade of the inverted lithotrite to pick up the final flat fragments of stone from the floor of the bladder.

These cases do perfectly well under litholapaxy. The stone can be removed without risk or damage, and the patient is left with his enlarged prostate uncomplicated for the catheter and more or less vesical irrigation to attend to; and all this is attained without the risk of a severe operation, which prostatectomy is.

So grave is it and so far from being ideal in the functional results that it guarantees, that we hear less about prostatectomy now than formerly, and widespread efforts are being generally made to substitute milder operative procedures, orchidectomy, vasectomy, and the Bottini operation, for cutting down the prostatic bar by electricity from within.

Prostatectomy is not now generally advocated by the Guyon school in France. The tendency there is to return to the catheter with asepsis. A serious opposition is steadily growing up against orchidectomy, which has been much overdone, and is not, in my opinion, as devoid of risk to the patient's body and danger to his mind as has been claimed.

Vasectomy I believe to be of little value in reducing the size of the prostate. Prostatectomy I consider the operation of choice in prostatic cases when the patient cannot get along with the catheter and asepsis.

But there are two kinds of prostatectomy, one the total evisceration of the capsule of the gland from above or from below; and the other partial prostatectomy, cutting away third lobes, bars, horse-collar overgrowths, and enucleating interstitial prostatic tumors.

The last-named group of operations gives the best result, if the floor of the urethra be lowered by gouging out the vesical prostatic orifice upon the floor with an *emporte-pièce* (such as I here show you), or cutting it well down and forcing it to heal open by the prolonged wearing during the granulating process of a large perineal tube.

Total evisceration of the prostatic capsule does not always cure. I have seen functional disturbance persist after it and partial incontinence, while its risk is greater than that of partial prostatectomy, because it is a more violent and more extensive operation.

Moreover, as we all know, it is not the size of the prostate that makes it obstructive or causes it to yield subjective symptoms. Many a man with a very large prostate empties his bladder entirely, has no residual urine, and does not greatly complain; while another, with practically no general enlargement, but with a third lobe or a prominent bar—thus making his prostate actively obstructive—will suffer the torments of the damned and embrace any operation and take any risk which promises to relieve him from his torture. It should, therefore, be the surgeon's object to remove the obstructing portion of the prostate rather than to take the organ away in bulk, since the bulk alone, often, does little damage.

Here, then, are just the conditions that we sometimes find typically illustrated in a case of prostatic enlargement complicated by stone—namely, a prostate slightly or greatly enlarged, a tender prostatic urethra, which, if traumatically irritated by the lithotrite and tube in efforts to remove a stone, will resent the injury, and a residual accumulation of urine, which cannot be properly attended to on account of this very prostatic obstruction and irritability, making the kindly use of the catheter impossible.

In such a contingency it is clearly the surgeon's duty to cut, and if he cuts he has the door open, and with the patient's consent it is only fair to add somewhat to the operative risk by prolonging the lithotomy into a partial prostatectomy for the ultimate good that will come of it.

The facts that I have stated I can vouch for, and if the postulates I have constructed out of them are accurate and my logic sound, the deductions become obvious, and may be summed up as follows:

CONCLUSIONS. 1. When stone complicates enlarged prostate, if the condition of the latter be such that, were the stone absent

no operation would be called for, then the whole question is to be solved by deciding whether the obstructive quality of the prostatic enlargement, the size of the bar, the depth of the *bas-fond*, the irritability of the prostatic urethra and its resentment of instrumental interference—whether any of these factors be sufficiently accentuated to make litholapaxy impossible, or to make it possible only at the expense of leaving the patient (as to his subjective symptoms) worse than before. If such conditions do obtain, then the stone should be removed by the knife.

2. In short, the main matter is one of diagnosis by the searcher, the cystoscope, rectal touch, and the tentative testing of the prostatic urethra with instruments.

3. The mere size of the prostate is not a factor in the problem.

4. The size or position of the stone is not a factor, except in the case of encysted stone, or one too large for the lithotrite to grasp, or in the case of a foreign body. The smallness alone of the stone is relatively an argument against litholapaxy, since the symptoms in such a condition must be ascribed rather to the prostate than to the foreign body.

5. If lithotomy be performed the suprapubic route should be elected, since this opens the door for more perfect work and allows the surgeon to remove obstructions, such as third lobe, interstitial growths, outstanding horse-collar enlargement, bar, and to lower the vesical end of the urethral floor, thus accomplishing all that could be done by a more extensive prostatectomy, without very seriously increasing the operative risk.

6. Finally, here as elsewhere in surgery, the only safe practical guide is surgical judgment, based upon diagnosis, guided by experience.

GENERAL DISCUSSION.

DR. HERMAN MYNTER, of Buffalo: I once made the mistake, in a case where there was stone and enlarged prostate, of performing lithotrity; it was before litholapaxy was known. I may say that I wished to do suprapubic cystotomy, but was overruled in consultation. Two weeks afterward, when the man died of inflammation of the kidneys, we found that the third lobe completely occluded the entrance to the urethra, and that fragments of stone had greatly inflamed the bladder. In such cases I should always be in favor of the suprapubic method, inasmuch as the third lobe can be removed at the same time.

I am much opposed to advising an old gentleman to begin with catheter-life, for, do what you will about cautioning these men, the result after a short time is infection of the bladder and all the ills that follow. One operation, that of Dr. W. Meyer, of New York, has not been mentioned. This operation, of ligating the internal iliac artery, I imagine is a difficult one; otherwise, it might be the operation of election. In cases of prostatic disease, the simplest and most effective method, I believe to be castration in persons over sixty or sixty-five years of age. Last year I did five total castrations, with a good result in all the cases. I do believe, with Dr. Pilcher, that it is the simplest, easiest, and most innocent operation. If it cannot be done, I should favor suprapubic cystotomy.

DR. O. F. KINLOCH, of Troy, recalled a case of prostatic hypertrophy in which the man was seventy-six years old at the time of his death; the autopsy showed a gland weighing about four pounds. In another case there was a history of twenty-three years of catheter life.

DR. PILCHER: In cases of stone in the bladder, complicated by enlarged prostate, I have resorted to suprapubic cystotomy, and have begun to remove at the same time the obstruction to urination. There have been three cases so treated by me within a comparatively short time. The operative technique was not difficult, and the hemorrhage was readily controlled; but in each one of these cases there developed renal congestion, with suppression of urine, and in each instance the termination was in death. This has made me pause and look for a safer way. In the case so graphically detailed to us by Dr. Keyes, in which he performed an "incomplete" operation, but saved his patient's life, the very fact of the incompleteness was the perfection of the operation, and thereby he succeeded in accomplishing what we are striving for in our surgical work—*i. e.*, relief of the patient and recovery. It is this extreme danger following these bloody interferences with the prostate, when the bladder was open, that has caused me to accept with much readiness the proposition of securing, if possible, atrophy of the prostate by the removal of the testes. I fully appreciate the sentimental objection which may be often entertained; I believe, however, in the majority of cases this sentimental objection is very greatly exaggerated, and may be overcome by a very little tact on the part of the surgeon. To a man who has reached advanced years, and has developed obstructive prostatic hypertrophy, the alternative of subjecting himself to the more serious dangers outlined to us, or losing his testicles, with a great probability of relief to urinary obstruction, should be easily decided, and there should be no question whatever as to the course to be pursued. Far be it from me, however, to present myself as the partisan of any one method; I desire

simply to contribute what I may of my own personal experience to the discussion of this extremely important subject.

DR. KEYES: I think Dr. Pilcher underestimates the severity of the operation. The worst statistics give a mortality of 20 per cent., and the best statistics claim 10 per cent. mortality, so that it is not such a harmless operation.

XII. TREATMENT OF STRICTURE OF THE URETHRA BY CONTINUOUS ELASTIC DILATATION.

By R. J. WILDING, M.D.,
MALONE.

As the object of this paper is to bring to the notice of the profession a method of treating strictures of the urethra, more particularly those seated in its deeper portions, I shall not take up the time of this Society by discussing either the anatomy of the urethra and the surrounding parts, or the pathology, etiology, or varieties of stricture further than to say that all strictures, whether traumatic or the result of disease or drugs, have these points in common, viz., that their persistence and the principal difficulty encountered by the surgeon in attempting to relieve his patients are due either to the irritability and tendency to contraction either of the walls of the urethra or of adventitious bands, or of plastic material deposited in the parts immediately adjacent to the urethra. Any method of treatment which does not tend to promote absorption of the abnormal bands and deposits in and around the urethra must necessarily result in many failures to relieve the patient. This, I think, is one great reason why such operations as urethrotomy and divulsion, etc., do not always give as favorable results as might be desired. Such operations merely divide the stricture, and do not necessarily cause absorption, and consequently have to be followed by a course of treatment by sounds. The method of treating strictures which I am about to describe has in my hands proved very successful, has the merit of being simple in execution, and so far has proved to be free from many of the dangers of other methods in common use. It has the further advantage that the patient need not be confined to the house while under treatment; indeed, as a rule, he can pursue the majority of vocations without

much inconvenience. I have termed it the treatment of stricture by continuous elastic dilatation, because the principle involved in its execution consists in taking advantage of the fact that continuous elastic pressure tends to produce absorption of such tissues as are subjected to its action. This applies to the enlargement resulting from inflammatory processes, as well as to normal tissues. It can also be applied so as to cause absorption of the hardest and most resistant tissues, even bone itself, without causing material injury to the softer parts covering them. Cases are on record in which the skull has been divided, without serious injury to the soft parts covering it, by the continuous elastic pressure of such a slight rubber cord as that used by women to retain the nets to confine the hair, which were so commonly worn some years ago. Continuous elastic pressure also quickly relieves spasmodic or nervous contractions apparently by tiring out the living tissues. As the instruments used in this method are not at all complicated, and are principally composed of soft rubber, which can be very easily sterilized, abrasions are not likely to be caused, and the danger of septic infection is reduced to a minimum. The stricture is dilated and the absorption of the adventitious material caused by the continuous elastic pressure of a soft-rubber catheter, which is a few sizes larger than the calibre of the stricture, being passed through it into the bladder, and being left *in situ* until it plays freely therein, when it is withdrawn, and another of a larger size takes its place, which process is repeated until the stricture is thoroughly dilated and complete absorption has taken place. I have usually found that the catheters are ready for removal in from twenty-four to forty-eight hours. Such instruments appear to occasion very little irritation, and, as far as I have observed, no inflammation. The action of such instruments appears to be of an entirely different character from that of a rigid instrument, whether metallic or otherwise. A rigid instrument will, in the course of a few hours, provoke a great amount of irritation, followed by inflammation, and will cause before long discharge of a purulent character. I have not seen any such results from the use of clean, soft-rubber instruments. The catheters are passed by being stretched on flexible guides until they become small enough to pass through the stricture. As soon as the strain is taken off they resume their natural size, and the process of dilatation and absorption commences. For stretching the small-sized catheters I use

whalebone filaments, and for the larger sizes a flexible metallic catheter conductor. The catheter, having been introduced, is at once tied in and a small plug fitted to its open end, the withdrawal of which from time to time, as occasion requires, gives the patient complete control of the bladder. As a rule, my patients are able to attend to their ordinary business, and generally come to the office to have the catheters changed. Before discharging a patient I make a rule of furnishing him with and teaching him how to pass a full-sized steel sound, and direct him to pass it once a week, cautioning him to report should he find any difficulty in its introduction. As yet I have had no relapses, and have every reason to believe that the cases are cured. I have been using this method for a number of years, during which time I have treated a large number of cases. As illustrations, I shall give condensed histories of three :

CASE I.—F. D., a laborer, called on me July 2, 1890, to make an incision into an abscess situated in the right groin, for the purpose, as he said, of enabling him to pass urine. He gave the following history: Something over a year before, while engaged in digging a deep ditch, the earth caved in, crushing him severely. His physician told him the pelvis was injured in front. He had to have a catheter passed to enable him to urinate, which caused him a great amount of suffering. Urine gradually began to pass through a wound in the right groin. For many months before I saw him he had passed all his urine through the opening in the groin, which kept up a constant discharge of pus. With great difficulty I succeeded in passing a fine whalebone filament into the bladder, over which I passed a small tunnelled silver catheter of No. 2 English gauge. I then commenced the use of soft-rubber instruments, after the plan I have described, and after three weeks' treatment had the satisfaction of seeing him use a No. 16 American steel sound. Until his death, a short time ago, caused by pneumonia, he had no further difficulty in voiding urine. The sinus completely healed up, and he worked as usual.

CASE II.—Was called March 17, 1891, to see Mr. C. M., a farmer, on account of a large, painful swelling in the perineum, which proved to be an abscess, which ruptured during examination. A large quantity of pus, mixed with urine, escaped from the opening. He said that for some time he had had great difficulty and pain while micturating; had been obliged to have a catheter used occasionally, which was passed with great difficulty. Examination of the urethra revealed three contracted places in that passage, one comparatively slight, about an inch from the meatus, another about four inches, and a third which admitted a No. 4 American with difficulty in the deep urethra. Behind the deepest stricture a calculus was easily felt. The urethra was dilated with soft-rubber instruments, and a number of small phosphatic calculi evacuated, some of which passed per

urethram and some through the opening in the perineum. The opening in the perineum gradually healed, and the urethra was restored to its normal calibre. This case was somewhat protracted by the healing of the perineal abscess, so that the patient was not discharged until August, when he was given a No. 18 American sound, since which date he has had no further trouble.

CASE III.—Was called to see Mr. F. S., business man, July 25, 1895; found him dull and stupid, and attempting to urinate every few minutes, when by straining he would succeed in passing a few drops of urine. He was evidently suffering from uræmic intoxication. He informed me that about twenty years before he had contracted a gonorrhœa, since which time he had been troubled with a stricture, which had gradually grown worse in spite of the efforts of his physician to relieve him. Exploration of the urethra showed that there was a stricture of large calibre about two inches from the meatus, and another, which was almost impermeable, situated in the deep urethra. With great difficulty I succeeded in insinuating a fine whalebone filament into the bladder, which I tied in place. Having that for a guide, I gradually introduced others, so that on the 30th I was enabled to pass a Gouley-Thompson dilator over one of the whalebone filaments. I then succeeded in getting a No. 7 American soft-rubber catheter into the bladder, and commenced the use of continuous elastic dilatation, which succeeded nicely, so that he was discharged August 31st, at which time a No. 21 American sound entered the bladder freely. I have seen the gentleman recently, and he informs me that he has had no further trouble.

It will be observed that Cases I. and III. are such as are usually considered suitable for external urethrotomy. In both the results of gradual elastic dilatation were all that could be desired, and my patients had the advantage of not being confined to the house, but were able to go about and attend to their business.

XIII. A YEAR'S WORK IN APPENDICITIS.

BY HERMAN MYNTER, M.D.,

BUFFALO.

It seems almost preposterous to attempt in the limited time, fifteen minutes, at my disposal to review our present knowledge of appendicitis. It is, however, seven years to-day since Dr. McBurney read his paper on appendicitis in this Society, accompanied by a report of a number of early operations. From that date commences the modern treatment of this disease, and I think I may

state that no disease has attracted more attention among physicians and laymen ; none has now its pathology better understood ; in none are the indications for operative treatment clearer, even if it must be acknowledged that we yet find physicians, though in decreasing numbers, ready to combat statistics and experiences gained in numerous operations with statements unsupported by anything but their individual opinions. Well may we repeat one of Robert T. Morris's aphorisms on appendicitis : " One look is worth three feels and four guesses." It may, therefore, be of interest shortly to review what we have gained in these seven years.

In *etiology* the cæcal theory has disappeared, never to return, and the appendix is recognized as the exclusive cause in about 90 per cent.

Previous attacks are found as an etiological factor in from 30 to 50 per cent., be this the result of strictures, dilatations, mechanical obstructions, such as kinks or coprolites or obliterations, and the statements of many opponents of operative treatment, that the great majority of attacks are single and followed by perfect cure, have been disproved.

Coprolites, we know now, do not enter from the cæcum, but are formed in the appendix itself, and consist of inspissated mucus and different salts colored with fecal material. They are found in 50 per cent., and act partly by producing stenosis of the lumen and retention of the secretion, partly by irritating the mucous membrane, producing swelling, with increased secretion and dilatation, partly by producing pressure-necrosis and ulceration.

Microbes, particularly the bacillus coli communis, are recognized as the main cause of acute appendicitis, although we occasionally find other forms, such as staphylococcus, streptococcus, and pneumococcus.

The colon bacillus is generally considered innocent as long as it is surrounded by a healthy mucous membrane, but it becomes virulent in cases of inflammation, strangulation, œdema, and sometimes in diarrhœa and constipation. It may, in rare cases, migrate through the intact wall and produce septic lymphangitis followed by diffuse peritonitis. In these cases the appendix may be examined macroscopically and declared innocent, while the microscope, nevertheless, will prove it the cause of the disaster. It has also been shown that the peritoneum is able to take care of a certain amount of a pure culture of the colon bacillus injected into a healthy peri-

toneal cavity. A small dose produces diarrhoea, a somewhat larger dose localized purulent peritonitis, a still larger one fatal, diffuse, fibro-purulent peritonitis, and, if very large, death from acute sepsis before peritonitis has time to develop.

These experiments of Ziegler explain why we in one case get a localized peritonitis, in another a diffuse, fatal peritonitis. It depends, in my opinion, in the one case on the presence of a stricture on the proximal side of the perforation; in the other case on a large perforation in direct communication with the cæcum, through which the contents of the bowel may flow into the peritoneal cavity in a steady stream.

In regard to *frequency* it has been shown that appendicitis is the most important acute abdominal disease in our day, and, with the exception of certain zymotic diseases, the cause of more deaths than any other abdominal affection; also that it is the cause, with very few exceptions, of all cases of local and diffuse peritonitis in young men. Different statistics have shown that we meet appendicular lesions in 20 per cent. of all subjects who have succumbed to divers diseases, and that death from appendicitis forms 1.1 per cent. of all fatal cases, and in males between ten and thirty years 4 per cent. of all fatal cases.

In regard to *classification*, it may be stated as an infallible truth that there is a perfect gradation from the mildest to the most severe and fatal cases, a perfect gradation pathologically from a piece of fibrin around the appendix to a diffuse septic peritonitis, and that therefore all classifications are more or less artificial. As, nevertheless, the different forms of appendicitis have a different pathological fund, a different set of symptoms, different etiology and prognosis, it seems but proper to use some kind of classification, always bearing in mind that it is artificial.

Pathologically, I have found a division into simple catarrhal appendicitis, ulcerative appendicitis, and infectious appendicitis to answer all purposes, always remembering that they overlap, and that each of them may be followed by more or less severe complications, such as strictures, dilatations, perforations leading to localized abscesses or peritonitis, gangrene, septic lymphangitis or chronic recurring appendicitis.

Clinically, a division into simple catarrhal appendicitis, appendicitis with perforation and localized abscess, appendicitis with gangrene without perforation, appendicitis with gangrene, perfora-

tion, and peritonitis, and chronic recurring appendicitis answers all purposes.

The *simple catarrhal form* may probably subside, and in its earlier forms be followed by perfect recovery. It is, however, probable that it more frequently goes over into a subacute or chronic form, leaving pathological changes which favor new attacks. These pathological changes consist in partial or total obliteration, formation of strictures, kinks, and dilatations, which again are the principal causes of chronic appendicitis and, by aid of the microbe, of acute relapses.

The *ulcerative form* presupposes a former catarrhal form which has produced stricture and dilatation. These dilatations change readily into empyema on account of the virulence of the microbes in the retained secretion. Concretions are formed, followed by atrophy, pressure-necrosis, and ulceration, through which the microbes may enter the wall, producing oedematous swelling, gangrene, and perforation, followed by either local or diffuse peritonitis.

The *infectious form* depends upon bacterial infection as the exciting cause and leads to gangrene, perforation, and peritonitis. It may start either from a catarrhal or an ulcerative form, but we may, on the other hand, find cases in which rapid, fatal peritonitis develops, and yet the appendix appears, macroscopically at least, intact. The infection takes place in these cases through a septic lymphangitis, is accompanied by somnolence, profuse perspiration, high temperature, and rapid fatal peritonitis, or death may even occur before peritonitis has had time to develop. Despite the absence of any perforation of the appendix, and despite the apparent normal condition of the appendix, it is, nevertheless, at fault, and the microscope will show colonies of colon bacilli in the wall and under the peritoneum.

In regard to *diagnosis*, it must be granted by all that no disease is easier to diagnose, none has a more stable set of cardinal symptoms; but, on the other hand, while we may positively state that appendicitis is present, we are in most cases unable to say how extensive, how dangerous, and how far-reaching the effect of that appendicitis may become. Nor can we, with any assurance in a given case, state whether it will become a perforating one or not.

The importance of operating early in the perforating cases cannot be too strongly emphasized. In my experience no case has

recovered, in which perforation and peritonitis were present, if operated on later than the third day, and none has died if operated inside of thirty-six hours. The high pulse, the severity of the pain, rigidity in both iliac regions, costal respiration, and lack of improvement after twenty-four hours speak strongly for perforation.

In regard to *prognosis*, it is of interest to compare the results of medical and surgical treatment. Under medical treatment the prognosis is the more unfavorable the more serious the attack is; under surgical treatment the more unfavorable the later the operation is performed. After examination of numerous statistics, both here and abroad, I believe it may be stated with absolute assurance that under medical treatment of all cases there is a sure mortality of 16 or 20 per cent., while about 80 per cent. recover. These recoveries, however, are not perfect, but will be found to be followed by relapse in about 50 per cent., of which again 16 or 20 per cent. will terminate fatally during the first attack, a similar percentage during the second attack, etc., bringing the mortality under medical treatment of a given hundred cases considerably higher than 20 per cent. If pus be present the mortality will be about 50 per cent. When the mortality is given as so much less by physicians, it is because all the mild cases in which there is no pus, and which need only rest in bed, diet, and a little opium, are counted as so many recoveries. They would recover under any treatment, medical or surgical, or if simply left alone; but relapses will occur in probably 50 per cent. It may be stated as absolutely true that the mortality under *surgical treatment* depends, in the great majority of cases, upon the number of cases with gangrene, perforation, and diffuse peritonitis. These cases have a fair chance of recovery by operation, the chance depending absolutely on the time of operation, and being less and less for each day the operation is put off. The cases with localized abscesses recover almost invariably by early operation, as do cases with gangrene, but yet without perforation. Chronic recurring cases have no mortality worth mentioning, if treated by laparotomy. When death occurs after surgical treatment in the hands of a careful and conscientious surgeon, it is on account of unavoidable complications, such as pylephlebitis, septic lymphangitis, unavoidable except by very early operation, and not from peritonitis. The mortality under early surgical treatment of all cases will probably be less than 4

per cent., and then in cases with primary large perforations, while relapses are impossible.

During the year 1897 I treated fifty-one cases of appendicitis in the Sisters of Charity Hospital in Buffalo. The result agrees with my statistics of seventy-five cases which I have published in a recent work on *Appendicitis and its Surgical Treatment*. Seven cases had perforation, with localized abscesses, of which six recovered and one died; one was operated on second day; one on the fourth day; one on the fifth day; four on the sixth day.

Laparotomy was done in three cases, who all recovered; extra-peritoneal operation in four cases, the appendix not being removed. The fatal case was operated on the sixth day by a simple incision; he died of sepsis two days later. Ten were operated for appendicitis with total gangrene, but yet without perforation. Eight recovered and two died, one on the eighth day after the operation, from hemorrhage during the night from a mesenteric vein, the other from pylephlebitis suppurativa. The eight who recovered were operated: one on the first day; four on the second day; one on the third day; one on the fourth day; one on the fifth day.

The two who died succumbed to unavoidable complications, were operated late, and would probably have recovered by a more timely operation. *Fifteen* had chronic recurring forms, all of which recovered by laparotomy. Six were performed during exacerbations, nine in the quiescent period. Five had strictures, four empyema, four coprolites, two ulcerations, and two appendicitis obliterans. One had one attack; four had two attacks; one had three attacks; eight had many attacks, and one had never had a distinct attack.

In one case I found the appendix attached to the gall-bladder and presenting all the symptoms of gallstones, for which disease I intended making a cholecystenterostomy.

Some of these cases had most interesting histories of long-continued suffering, and one especially deserves mention. It was that of a young lawyer, aged twenty-five years, a Harvard graduate, who for four years had suffered continually from what was supposed to be nervous dyspepsia. He had been treated by a number of prominent physicians, Dr. Osler among them; had been sent to a water-cure, to New Mexico to rough it, to Europe to divert his attention, etc., but without result. He was sent to me by Dr. Hopkins, of Buffalo, and I found a long, tender, swollen appen-

dix, pressure on which brought on regular neuralgia in the epigastric region. He had never had a distinct attack of appendicitis. Nevertheless, I found at the operation extensive adhesions around the cæcum and a seven-inches long, thickened and dilated appendix buried in old, dense adhesions. The operation was followed for twenty-four hours by an aggravation of all his dyspeptic symptoms, with intense neuralgia in the epigastrium; but the symptoms disappeared thereafter, and he left the hospital in two weeks in perfect health. I have had two other cases among the fifteen with so-called nervous dyspepsia. Is it not possible—yes, probable—that a number of these obscure cases suffer from chronic appendicitis?

Lastly, of cases with gangrene, perforation, and peritonitis, I had nineteen cases, of which nine recovered and ten died, a mortality of 53 per cent. Eight had had previous attacks (four one attack, three two attacks, and one three attacks) and eleven none. The great importance of early operation is best seen by mentioning the days of operation: Four were operated inside twenty-four hours, and all recovered; seven were operated on second day, of which four recovered and three died; two were operated on the third day, with one recovery; six were operated later than the third day, and all died. To conclude, I believe the prognosis in these cases depends absolutely on the time of operation. Operate early, and you will save your patients; delay beyond the third day, and they will die in spite of the operation.

XIV. LESSONS FROM SIX CASES OF APPENDICITIS, TYPES OF VARIOUS CONDITIONS.

BY WILLIAM B. JONES, M.D.,
ROCHESTER.

ALL the cases mentioned in this paper were first attacks in healthy people. For the first twenty-four hours they were very much alike. All had colicky pains about the navel, vomiting or a tendency to it, pulse-rate only slightly increased, temperature little raised, iliac tenderness developing toward the end of this

time. All except one were treated at first with fomentations, laxatives, and no opiates, or very little.

CASE I. improved, and at the end of the first day was perceptibly better; tenderness gradually disappeared for two or three days, when convalescence became complete. Has remained well ten years.

CASE II., a child, apparently having indigestion and cramps, not ill enough to alarm parents. First day no treatment; second day stayed in bed and had a little medicine from a druggist. Third day physician found her in collapse. Early, fourth day, death from general peritonitis.

CASE III. from beginning gradually grew worse for three days, then suddenly became very sick, but soon improved, and was better for two days. Sixth day pain more severe, but hot applications sufficed, with opiates not more than once or twice in twenty-four hours. Operation sixth day. Appendix sloughed in places, ruptured, contents escaped among adhesions that prevented invasion of rest of peritoneum. Wound left open for drainage. Patient recovered after six weeks.

CASE IV.—First day severe colic; second day no better; beginning of third day the same. Operation insisted upon by family. Appendix gangrenous in spots; *not ruptured*, but abdominal viscera everywhere bathed in sero-pus. Recovery in five weeks.

CASE V.—First day severe colic; second day no better; end of second day sudden severe pain and prostration, immediately followed by relief and lessening of symptoms for six hours, so that the patient seemed much better, and had refreshing sleep. Then began pain all over the abdomen, with tympanites. Operation in middle of third day. Appendix gangrenous and ruptured, general septic peritonitis. Death the seventh day.

CASE VI.—First day much like the others; second day symptoms increasing; pain severe enough to compel use of three small doses of morphia, which secured rest and comfort. Operation end of second day. Appendix gangrenous in spots; ready to burst; and had it done so, general peritonitis must have followed, for there were no adhesions. Patient well in two weeks.

These are types, and represent the vast majority of all cases of appendicitis.

Case I. teaches that it is better not to operate on one that begins to get well within twenty-four hours and goes on to early recovery.

Case II. that an attack with mild symptoms may be rapidly progressing toward hopelessness and arrive at that condition before its serious nature is realized. An early operation would have been successful.

Case III. that a favorable case—that is, with limiting adhesions—may live a number of days, and, if operated upon, recover after prolonged and painful illness, during which he is exposed to danger that was fatal to Cases II. and V., and would have been

to IV., besides many others. There are more of these cases than of any other type, otherwise there would be no question between medical and surgical treatment. Without operation they often recover from one attack or more, otherwise there would be no difference of opinion as to time for operation; but most of them grow worse and worse, so that deferring it makes it more formidable, after a time of relapsing illness, suffering, danger, and expense. Operation after formation of abscess requires that an opening be left for drainage, and convalescence is prolonged.

Case IV. that there may be purulent infection of general peritoneum, without rupture. This patient would have died of it if operation had been deferred until after the occurrence of perforation.

Case V. should have been operated earlier than the middle of the third day. It was a needless death. Twelve hours after perforation was too late. There was the usual relief from pain, with apparent improvement, for a few hours. It happens in these worse cases with few adhesions or none. It is the interval between infection and septic inflammation of the general peritoneum. It is the golden opportunity for almost certain cure by surgery, but if neglected it is soon followed by symptoms of that dread disease. If a case is allowed to go to perforation operation should be immediately afterward, during this time of quiet, before symptoms begin to grow worse. When they do it is no longer localized inflammation.

Case VI., early operation, primary union, short illness, no liability to complication or sequelæ.

A few cases of appendicitis are medical, and they improve greatly within the first twenty-four hours if treated by laxatives, fomentations, and rest. It is usually safe to wait that long and watch the case, but at the beginning of the second day if, in spite of treatment, the condition grows a little worse or remains the same, the surgeon should be called then, and long enough before train-time to allow him to come at once.

Nevertheless, for a few that will be too late. Such have perforation or septic infection from the first symptoms, and become very sick right at the start. Opiates have to be administered, the pain being severe; vomiting is apt to be more than usual, and the patient feels himself to be very ill. These should not go over into the second day at all. Part of them will be dead by that time, and more will be beyond help. They are curable on the first day.

Here, especially, the rule applies to operate whenever an opiate is required. It is the best one for fixing the time of operation. It will never be too early, and almost always is just right.

I do not intend to discuss medical *versus* surgical treatment, but of these six cases all would have recovered with operation sufficiently early; three or more would have died in this first attack without one, and those operated upon and recovered are infinitely better off than most cases that recover without surgical treatment.

DISCUSSION.

DR. WILLY MEYER, of New York: I think this subject needs discussion every year for the next twenty years. Appendicitis is a medical as well as a surgical disease. The surgeon should be called in at once in serious cases or if the medical man is in doubt as to the outcome of the case, and this will be in almost every instance. The surgeon is incorrect who asserts that every case demands operation; but the surgeon should watch the case, especially if there is any increase in the rapidity of the pulse. This careful observation should decide the proper time for operation, if one be required. My aim would be to watch the patient and try to get over the first attack. Dr. Mynter maintains that in about 50 per cent. the attack recurs. I think we should have more statistics on this point, and these only the general physician can supply. If it is the duty of the medical man to save life, the appendix must be removed after the first attack, or, at the very latest, after the second attack. During an acute appendicitis we can never do the very best for the patient. In many instances the surgeon will be very doubtful about draining or not draining. After the attack has subsided, say three or four weeks, he can do the beautiful blunt-division operation of Dr. McBurney; it is the ideal operation for appendicitis.

DR. MYNTER: Dr. Meyer has called attention to the great importance of the pulse; I agree with him that it is of ten times greater importance than the temperature. If the temperature is 103° and the pulse 100, you can afford to wait twenty-four hours; but let the pulse be 120, even though the temperature may be only 99° or 100° F., the quicker the operation and the removal of the appendix, the better. How do I know that only 50 per cent. have relapses? Meyer has given some statistics in which he insists that not 10 per cent. relapse; others have asserted that 80 per cent. recover. But from a study of available statistics I am convinced that 50 per cent. is the minimum of those getting a relapse. This subject is worthy of discussion annually;

it has not had it since that memorable one which took place here seven years ago.

DR. JONES : Dr. Mynter, with his perfect success, has also had no small measure of good luck. Cases of appendicitis have been known to die even before the second or third day, in what was supposed to be the first attack. Dr. Mynter says that the surgeon should be called early in severe cases to watch, and, if necessary, to operate. In spite of his remarks about the pulse and temperature, I am convinced that these signs are sometimes unreliable ; sometimes we know nothing about the existence of the disease until rupture occurs, this being occasionally the first symptom noted. Sometimes the rapid pulse does not occur until we already have septic peritonitis and the patient's condition is almost hopeless. It would be pleasant to operate upon all cases when they are well, but all patients will not be operated upon at this time. I have a number of patients who have been through one, two, or three attacks of appendicitis, and have nearly died in them, yet they have been debating the question as to whether or not they would have the appendix taken out, and they are still debating it.

DR. MYNTER : I never stated that I had not lost a case inside of three days ; I stated that I never lost a case of gangrene, perforation, and beginning peritonitis if operated upon within thirty-six hours. I have lost them from other complications. On the other hand, I stated that I had seen none recover who had been operated upon after the fourth day, and in which I found gangrene, perforation, and peritonitis. In my estimation it is a matter of time. The prognosis depends upon the point of perforation.

XV. SOME POINTS IN THE TECHNIQUE OF THE ALEXANDER OPERATION.

BY HERMAN E. HAYD, M.D.,
BUFFALO.

THE Alexander operation is, without doubt, an ideal surgical procedure. With improved technique and more certain anatomical landmarks, increased confidence has resulted. The operator, who a few years ago was full of doubt and uncertainty as to his ability to successfully find the ligament, now approaches the operation with a sense of assurance and confidence. Few operations have been subjected to more bitter controversial discussion, and none

have had more ardent supporters and, at the same time, more bitter opponents. Even the less enthusiastic were delighted and satisfied with the operation *per se*; but, unfortunately, their failures to find the ligament were so frequent that distrust and disappointment made them abandon it.

The round ligament consists principally of connective tissue and some muscle fibre, and takes its origin by three fasciculi; the inner from the tendon of the internal oblique and transversalis muscle near to the symphysis pubis; the middle from the superior column of the external ring near to its upper part, and the external fasciculus from the inferior column of the ring just above Gimbernat's ligament. Running from these points they unite into a more or less fleshy bundle and pass along the canal through the internal ring between the folds of the broad ligament, and are inserted into the anterior and superior part of the uterus.

Various methods have been employed to reach the cord, and much discussion and uncertainty still exist in the mind of the surgeon as to the surest means of always quickly finding the cord. Therefore we have various modifications of the so-called Alexander operation. Some operators simply button-hole the external oblique over the canal and with a hook fish out the round ligament. Others purposely and intentionally open the whole canal and secure the ligament by this open method in the canal; while a third class find the ligament at its origin, say at the external ring. I have practised all of the different methods, and with anything but encouraging success until last year, when I was taught by Dr. Mann—who was originally an indifferent exponent, if not a bitter opponent, of the Alexander operation—an improved method, and by employing it I have never failed to find the ligaments, not only quickly, but very easily. The method possesses a great many advantages in that it does not open the canal nor weaken the abdominal wall in any way whatever. It consists in finding the spine of the pubes, because close to this spot the external opening of the canal exists. An incision an inch or an inch and a half in length is made, say at an angle of 45° to the spine of the pubes, through the skin and fat. Then the fascia over the external oblique should be carefully dissected away, so as to thoroughly expose the tendinous fibres of the muscle. The finger will now readily find the opening of the ring, covered as it is with the thin intercolumnar fascia. This may be nicked with the scissors, when a little knuckle

of fat will pop out. All cutting instruments should now be put aside, as the landmark to success is the bundle of fat which is within the surgeon's grasp, and if cut or unnecessarily disturbed, trouble is apt to follow. This knuckle of fat should be picked up between the thumb and finger and gently pressed, when the terminal fibres of the cord will readily be felt. With the assistance of a small hook, or one of the blades of an ordinary hæmostat, other fibres can be separated from the pillars of the ring, and thus a larger bit be picked up, if necessary, in the bite of a pair of forceps, and gentle but steady traction made. Usually the forceps are quite unnecessary, because the bit of fat and its contained fibres are sufficient to exert traction with until the larger and fleshier piece of the ligament comes into view. Sometimes, owing to adhesions between the layers of the broad ligaments or peritoneum and the cord itself, quite a considerable amount of steady pressure is necessary to get the cord started, when it will either shell itself out or may need a little separating with the fingers from the adherent tissues. If the adhesions be very great, and perhaps the cord snap, or it is not found, owing to a possible abnormal course, then the canal may be laid open; but under no other circumstances can I imagine such a course necessary, contrary to the teachings of our brilliant colleague, Dr. Edebohls, of New York. The ligament, I think, can invariably be found without resorting to such a course, which must necessarily weaken the abdominal wall, as well as complicate and prolong the operation. Dr. Kellogg, of Battle Creek, fishes the ligament, with a sort of strabismus hook, out of the canal through a small opening in the external oblique. Those of you who have seen his bloodless operation through this small incision were delighted and surprised at the brilliancy of his technique, but I confess I am not dexterous and delicate enough in my manipulative skill to do the operation satisfactorily by his method, but prefer to feel and see the ligament as I have suggested. After the ligaments have been drawn out one and a half to two inches or more, as the case may require—which is easily made certain by a vaginal examination—the attached ends are severed and as much of the ligaments is cut off as will insure an anteverted position of the uterus. Then a strong, curved needle is threaded with chromicized catgut or kangaroo-tendon, and the ring—first on one side and then on the other—is sewed up, taking care to transfix the cord, however, not too tightly with one suture, and thus

maintain it securely between the approximated pillars of the ring; the free end of the ligament should be left about an inch in length, so that another suture can be passed through its tip, and thus again secure it higher up under the skin. The object of this suggestion is to have another fixed attachment so as to hold the cord in the event of suppuration taking place at the ring. The other side is then treated in the same manner, and then the skin incisions are closed. I usually place a few strands of silk in the dependent part of the wound so as to insure drainage, as I have occasionally opened up little collections of blood or bloody serum when this precaution was not taken. The nerve which is often seen may be pushed aside. However, when the canal is not opened, the nerve need give us very little anxiety, because it does not accompany the ligament very closely except in the canal, and, therefore, is not easily cut by this method of operating. Nor do I think it matters much if the nerve be divided, because it is apt to get attached to the scar and cause a painful cicatrix.

The indications for the Alexander operation are clearly defined—namely, retrodisplacement of the uterus, uncomplicated with manifest tubal and ovarian disease. Many operators, in their enthusiasm, advise us to go much further, forgetting the splendid results obtained by various other operative procedures. They advise us to open Douglas' cul-de-sac, break up adhesions, remove diseased tubes and ovaries, and then follow this more or less blind procedure with an extraperitoneal shortening or Alexander operation. But this course I shall never be tempted to follow, preferring to open the abdomen, if the peritoneal cavity must be opened at all, by the median incision, release the uterus, and remove such structures as must be taken out, and conserve such as may be consistently left after due and careful examination, and then either shorten the ligaments intraperitoneally by the splendid methods of Mann and Dudley, or ventro-fixate the retrodisplaced organ according to well-recognized plans.

My success with the Alexander operation has been very satisfactory; anatomically—that is, the restoration of the deflected uterus into good anteversion has always been effected; but clinically some of my patients have suffered from symptoms referable to overlooked tubal and ovarian disease, and I am satisfied, if I had embraced within the list of indications for this operation all the conditions enumerated by enthusiastic writers upon this subject,

more trouble would have followed. Therefore, my failures are fewer now than they were, because I only do the Alexander operation in uncomplicated posterior displacements, and if the future course of the case does not prove to be all that was expected, I am not discouraged, but charge my embarrassment to our inability to always recognize a closed tube with some slight ovarian disease.

XVI. THE PRESENT STATUS OF THE VAGINAL OPERATION FOR DISEASES OF THE PELVIC ORGANS.

BY EDWIN B. CRAGIN, M.D.,
NEW YORK.

THE time has come for a careful revision of our experience with the vaginal operation and a calm judgment of its utility. The new, so attractive to a large number of the profession, has gradually lost its newness, and with a considerable mass of evidence, *pro and con*, presented from different sections of this country and from abroad, we are now in a position to ask and answer the question: Are we better able to treat patients suffering with diseases of the pelvic organs now than we were before the resurrection and extension, under the stimulating influence of the French surgeons, of the operation years ago tried and abandoned by Thomas, Gilmore, Battey, and others?

By the vaginal operation is meant the direction of attack and procedure in different operations upon the pelvic organs—draining abscesses or inflammatory exudates; removing tumors, the uterus, or the appendages.

It is only natural that after years had been spent in perfecting technique and developing dexterity in the abdominal operation, a change so radical as that involved in the vaginal method should meet with opposition. Objections the operation has, and now, after several years of experience with it, we know something of what the objections are, something of what the limits of the operation should be.

It is said that the vaginal operation is a difficult one, and this must be admitted even by those who favor vaginal work and use this route in a large proportion of their cases. It certainly re-

quires more practice to become familiar with it than the abdominal operation ; but here as elsewhere experience removes the difficulties and practice gives dexterity.

Certain dangers have been emphasized as being more marked in vaginal than in abdominal work. Of these, hemorrhage and injury to the neighboring viscera, with resulting fistulæ, have been made especially prominent. It must be confessed that there has been ground for criticism in the early work of almost all who have tried and practised the vaginal method, and occasionally one has been obliged to open the abdomen to check bleeding, the control of which he did not feel sure of from below. As experience has increased, however, and we have better learned to judge the class of cases suitable for vaginal attack, the control of hemorrhage has been found to cause little, if any, more trouble than in abdominal operations.

Rectal fistulæ during one's early experience with vaginal work occur, perhaps, with rather greater frequency than when operating through a large abdominal wound with the patient in the Trendelenburg position. The differential feel between rectum and distended Fallopian tube is not always appreciated with ease. Even the entrance into the peritoneum through the posterior vaginal fornix, in one's early work, sometimes gives trouble, especially when the pouch of Douglas is obliterated by adhesions, and in our efforts to separate these adhesions the rectum has been injured. Experience and the selection of cases suitable for the method have helped largely to overcome this complication, and it is generally conceded that even if a fistula does occur, as a rule it closes spontaneously in a short time.

Thus far we have spoken chiefly of the disadvantages of the method and of its complications. Why should one wish to employ the vaginal operation if it is more difficult for the operator? Because we believe that in properly selected cases the operation is accompanied by less shock, the mortality is less, the convalescence is smoother, and even if the occurrence of hernia in a properly-conducted abdominal operation is rare, it must be admitted that in the vaginal method it is still more rare ; the writer has never met with one in his own experience. Although the avoidance of an abdominal cicatrix is not a matter of great importance, if the operation can be equally well performed without one, it is usually appreciated by the patient. The rapidity of convalescence and

the shortness of time which the patient is required to be kept in bed are sometimes emphasized by enthusiastic advocates of the vaginal operation; but in the opinion of the writer, although the patients feel like getting out of bed sooner than in the abdominal operation, they should not be allowed to do so for at least two weeks. A firm cicatrix, absorption of exudate, and the future welfare of the patient are certainly more promoted by rest and quiet than by any attempt to see how early the patient can leave the bed.

In certain cases the vaginal operation has marked advantages, and in our discussion of the subject the most important feature is the selection of cases for which the operation is suited. The writer, on looking over the record of his vaginal work, found included in the list, aside from operations for the removal of the uterus and appendages, such operations as removal of the vermiform appendix, removal of a displaced left kidney, myomectomy at the fundus of the uterus, etc. Certainly the possibilities of the vaginal method are great, but the question before us as conscientious surgeons is not what *can* be done through the vagina, but what, in the interest of the patient, *can best* be done in this way.

It is only natural that in testing the merits of a new operation we should extend its use into fields whose boundaries riper experience tells us had better not be crossed. In my early vaginal work a number of patients were operated upon by this route in which the uterus appeared to be so healthy that its removal did not seem indicated in spite of the removal of both appendages. Although the results were good, experience and observation lead me to think that, except in the case of small ovarian tumors, *if the uterus is not to be removed*, the abdominal operation is to be preferred for the removal of one or both appendages. Small ovarian cysts and prolapsed diseased ovaries, requiring removal, form a class of cases often well adapted to the vaginal operation. Except in these instances, however, I believe that unilateral disease of the appendages is best dealt with from above, where the organs may be more thoroughly inspected, and those which are not to be removed may be left in the best possible condition for the future welfare of the patient. These are general rules, and many exceptions may occur. A woman with a roomy vagina and a thick, fat abdominal wall, with the mass to be removed lying low in the pelvis, is a favorable subject for vaginal work.

The vaginal operation has been tried in different phases of ectopic

gestation, but experience proves that except in cases in which rupture has taken place some time previously, and the resulting hæmatocele is well encapsulated, the abdominal operation is the one to be preferred. Many operations have been tried through the vagina for the correction of posterior displacements of the uterus, but on account of frequent dystocia among those in whom pregnancy has followed the operation, vaginal fixation of the uterus has been largely abandoned. Vaginal shortening of the round ligaments at present has rather a brighter outlook, but experience with it has been so limited that judgment must be reserved.

Into the general question of whether it is advisable after resection of a portion of a diseased ovary or tube to leave the remainder, if apparently healthy, I shall not enter, but will only say that if this conservative work upon the appendages is to be done, most operators are agreed that it is better done from above than from below.

A class of cases in which the vaginal operation has proved of great service to the writer comprises women who are pregnant and whose parturient canals are obstructed by tumors which cannot be raised out of the pelvis. I have three times observed this condition, and by vaginal removal of the tumor have enabled the patient to be delivered of a living child.

There are three groups of cases in which the vaginal operation has proven, in my experience, a great boon to suffering women.

1. Pus cases in which removal of the uterus and appendages is indicated.

2. Cases in which exudate indicates drainage without the removal of any organ.

3. Small fibromyomata.

The question of whether hysterectomy is indicated in every double salpingo-oöphorectomy will not be discussed in this paper. Suffice it to say, that the profession are pretty generally in accord that there are many cases of double pyosalpinx in which the uterus, enlarged, the seat of a marked endometritis, perhaps with cervix lacerated, had better be sacrificed if both appendages are removed. Experience seems to justify this conclusion, and it is just in these cases in which the vaginal operation, with its lessened shock, lessened handling of the intestines, and more complete drainage, finds its most perfect adaptation.

Puerperal septicæmia does not often indicate hysterectomy, but there are a few cases, which, in the latter part of the puerperium,

about the end of the first month, present pus foci in the uterine walls or in the appendages, or in both together. Here, again, vaginal hysterectomy has found a useful field. The writer has operated upon four such patients, saving two and losing two, a better result, I believe, than would have been obtained by the abdominal operation.

It has long been a familiar fact that patients profoundly septic do not endure well extensive operations; and it has long been the practice of many men, in cases in which there are large collections of pus, to drain the abscesses through the vagina and wait until the patient recovers from her sepsis before subjecting her to the radical operation. This certainly is a rational procedure, and its adoption has saved many lives by requiring, at a later date, a less extensive operation than would have been needed early, and sometimes by obviating the necessity of a subsequent operation.

Thanks to the work of Henrotin, of Chicago, we have found that in the relatively acute cases, before the formation of much or any pus, a great deal may be accomplished by vaginal incision, breaking up the adhesions about the appendages, and draining freely through the vagina. In one case, in which was threatened an extensive peritonitis from infected, retained secundines, the writer, by curettage of the uterus, vaginal incision, separation of the adhesions about the appendages, and free vaginal drainage, secured a rapid convalescence with no permanent damage to the tubes and ovaries. Two patients with pelvic peritonitis and exudate in the pouch of Douglas and about the appendages, with physical signs as nearly alike as two cases could be found, were placed by me in adjoining beds in a hospital ward. In one a vaginal incision was made in the posterior fornix, adhesions were broken up, and the pelvis was drained with gauze; the other was subjected to the usual routine treatment of vaginal douches, boroglyceride tampons, and counter-irritation. The former patient convalesced and left the hospital in just about half the time required by the latter. Of course, it cannot be proven that the two cases were absolutely alike, but the symptoms and physical signs resembled one another closely, and the rapid symptomatic cure in one by means of drainage was in marked contrast to that of the other. The writer would not be understood as recommending vaginal incision in every case of pelvic peritonitis, but when there is present evidence of fluid exudate in the pelvis, vaginal incision

and drainage will, I believe, shorten the convalescence and lessen the damage to the appendages.

Whether fibromyomata of the uterus should be attacked through the vagina depends upon their size and location in the uterus. If myomectomy is to be performed, unless the tumor is situated in the lower uterine segment or in the cervix, the abdominal route should have the preference. If hysterectomy is to be done, and the uterus and tumors together do not form a mass larger than a pregnant uterus of three or four months, the vaginal operation, with or without morcellation, has advantages so marked that one has only to watch the convalescence in such cases to be impressed with the fact that patients thus operated upon present but little more reaction than from a plastic operation for the repair of cervix and perineum.

Into the technique of the operation I shall only go far enough to emphasize the value of (1) morcellation, (2) the Mikulicz drain, and (3) ligatures. Those who have not tried and practised morcellation in some form or other in the course of a vaginal hysterectomy with an enlarged uterus, have certainly not availed themselves of their opportunities. The facility which is thus given the operator in acquiring needed space for work, and in reaching parts hitherto beyond his reach, can only be appreciated by those who have tried it. In the case of a fibroid uterus, with pus in tubes or ovary, morcellation proves of especial value; as, after the removal of the cervix and middle third of the uterus, and the splitting of the fundus, the fingers, or even the hand if it is small, may be introduced into the pelvis and the appendages enucleated. It is probably familiar to nearly all that the secret of success in morcellation lies in the fact that steady traction upon the uterus, with a reliable volsella affixed above the part to be removed, controls hemorrhage.

In all cases requiring drainage after vaginal hysterectomy, the principle of the Mikulicz pouch carried out in the following manner has given me most excellent service: A square handkerchief-shaped piece of gauze is opened out by an assistant and held in front of the vulva; a blunt instrument, like a sponge-holder, is placed by the operator against the centre of this gauze and pushed on into the pelvis. The fingers of the operator are now substituted for this instrument and carried up on one side until he feels that he is above the highest pedicle of that side. The end of a long narrow

strip of gauze is then passed along the finger, of course within the pouch, until it, too, is carefully placed above and against the highest pedicle; enough of the same long narrow strip is inserted to fill loosely that half of the pelvis. The fingers are then introduced above the pedicles on the other side, and the same process is repeated either with a part of the same long strip or with another. In this way the intestines are kept away from the field of operation, drainage is secured, and the strip of gauze may be gradually withdrawn from the pouch with scarcely any disturbance to the patient; the pouch collapses as its contents are removed and may be withdrawn as desired.

The profession is divided in the choice of clamps or ligatures as means of controlling hemorrhage. It undoubtedly is often a great convenience to use clamps at various stages of the operation, but the impression seems to be gaining ground that the comfort of the patient is better provided for if the clamps, when used, are replaced by ligatures before the patient leaves the table. In my own practice it is a very rare exception if the clamps are left on when the patient leaves the operating-room.

In conclusion we believe:

1. That there are many conditions in the pelvis not suited for the vaginal operation.
2. That care is required in the selection of cases for this work.
3. That small fibromyomata and small ovarian tumors are often well suited for vaginal attack.
4. That in pus cases indicating hysterectomy, and in cases requiring drainage, the vaginal operation has great advantages.
5. That in answering the question presented at the beginning of this paper we must admit that we are much better able to treat and cure patients suffering with disease of the pelvic organs now than we were before the development of the vaginal operation.

XVII. UTERINE HEMORRHAGE.

BY WILLIS E. FORD, M.D.,

UTICA, N. Y.

THE sudden loss of a considerable amount of blood as the result of a gunshot wound, a railway accident, or of a necessary surgical operation, does not cause the surgeon any special anxiety. If the subject is young and vigorous the restoration under ordinary circumstances is speedy and unattended by special symptoms. If the loss of blood is very great, and the patient is old or feeble, the evidences of shock are combated by saline injections and cardiac stimulants, so that a life is rarely lost if the surgeon is alert and prompt in his work. In these cases the blood-counts fall very low—two million or even less to the cubic millimetre—the hæmoglobin also is correspondingly low. But it only takes a few days, as a rule, for this blood-count to be restored to its normal five million of red blood-corpuscles and the hæmoglobin to return to its normal estimation of 90 per cent.

The shock seems to be largely in proportion to the amount of lowering of the blood-count, but the convalescence cannot be measured by the condition of the blood-count, for weeks and even months of exhaustion and weakness, and of considerable emaciation, may continue, while the blood-count remains nearly normal. The amount of shock—a term we use in lieu of a better form of expression—occurring after a pulmonary hemorrhage which is not very extensive, and which is scarcely shown by an examination of the blood taken from the individual afterward, is entirely out of proportion to the loss of blood sustained. On the other hand, nose-bleed has been known to continue at intervals for several days, and large amounts of blood are lost without any marked condition of shock and without any nervous symptoms, though the blood-count may become very low.

The common expression among the laity that a person has lost as much blood as a woman in childbirth is a fair intimation of the fact that great losses of blood at these times are not looked upon with as much seriousness as if the bleeding had occurred from some other cause than childbirth. As a matter of fact, extensive hemorrhage in childbirth is not so common as it was in former

times, and the cases of even comparatively small losses of blood are inquired into because the condition is not regarded as a physiological one. After childbirth without severe hemorrhage the blood-count is not markedly lowered, the red corpuscles retaining their relative proportion to the whole volume of blood.

I have for a long time past been making inquiries as to the amount of blood lost by women after that accident where they have applied to me months, or even years, later for treatment or for surgical relief, and have been impressed with the fact that a large proportion of the cases of so-called neurasthenia uteri have, as a basis for their departure from health, an abnormal loss of blood. Throwing out all those cases of sudden and solitary hemorrhage in which the repair of the blood goes on rapidly, as if the hemorrhage had occurred from some other source, I am convinced that the study of the results of prolonged uterine hemorrhage will be profitable to the profession.

The nervous symptoms for which these patient usually apply to a physician have so frequently been attributed to reflex neuroses, or to a reflex condition accompanying uterine disorders, that I think sufficient attention has not been paid to the actual facts. It is doubtful if anybody can tell what is meant by reflex symptoms, but I believe the term has been used in a vague way—about as the term “change of life” used to be employed to explain the reason why women were sick between the ages of thirty and sixty.

A tear in the neck of the womb, which occasions considerable hemorrhage at an accouchement, but which promptly heals over, leaving a small cervical canal at the internal os, is rarely followed by any serious symptoms, nervous or otherwise. Of course, if the lips gape widely and the cicatricial tissue is extensive and of a low grade of vitality, and becomes inflamed from a purulent discharge, from a metritis or a salpingitis, then symptoms arise that require surgical relief. But if the tear goes up from the internal os, leaving the uterus large and the internal os wide open, then hemorrhage is likely to be continued, first, from subinvolution, then from a degenerative condition of the membrane, and later from adenoid growths as the result of this, causing excessive hemorrhage at the menstrual epoch and extensive bleeding upon any unusual exertion. Miscarriages are often the result of this condition. These women become invalids with large retroverted uteri, and, perhaps, with downward displacements. The condi-

tion is found without any history of inflammatory trouble, with sensitiveness of the organ, but with few other symptoms directly referable to it, excepting backache and a sense of weight in the pelvis and some sharp pains of a neuralgic sort.

This pathological state, it seems to me, is easier of explanation if we consider the constant or the frequent loss of blood as causing such a depletion and relaxation, than if we consider solely the inflammatory basis of the disease. The examination of the blood does not show such a low count of red corpuscles and of hæmoglobin as mark primary anæmia, even though the patients are pale, thin, and nervous. There is not very frequently found palpitation of the heart or ringing in the ears unless the pressure on the spine has been sufficient to start some actual spinal irritation. It follows very naturally that a continued and prolonged use of iron and tonics does not reach these cases.

Practically the same thing may be said of those cases of excessive menorrhagia and metrorrhagia in young women dependent upon the flabby condition of the uterine walls, or the presence of adenoids, polypoids, or submucous fibroids within the uterus. A large number of examinations of the blood of women who have suffered prolonged and excessive hemorrhages from large fibroids have not shown a marked diminution of red blood-corpuscles or in the estimation of hæmoglobin in the blood-count. Some other explanation, therefore, must be offered than that of the mere loss in the quality of the blood, and this I believe to be innervation of the nervous apparatus in the immediate vicinity of the leakage. The loss of blood is not sufficient to produce the rapid pulse with lowered tension as seen in great hemorrhages, but it is sufficient, if prolonged, to change the nutritive condition of the nerves in its immediate vicinity.

In cases of cancer of the uterus, where there are extensive necrosis and bleeding, the secondary anæmia comes on and the blood-count becomes low. But these people are notable for the absence of nervous symptoms as compared with lesser lesions of the uterus, and pain is not a common symptom at all unless produced by pressure; whereas in the other class of cases pain is a common symptom, not due to pressure, but due rather to a local depletion and starvation of the nerve filaments, like pure neuralgias. These facts rather support the theory that the local depletion is essentially the cause of the nervous disturbance. The purulent dis-

charge coming on late, and so abundant in most cases of large and deep lacerations, must drain the tissues and contribute to the local weakness.

It is a fact often spoken of by the laity, that it seems strange that five years after a childbirth which produced the tear it should be discovered that a trachelorrhaphy is necessary. But the pain and the nervous symptoms did not come on at once, perhaps not for a year or more, during which time an excessive loss of blood and, perhaps, one or two miscarriages may have occurred.

Some time ago (*Transactions American Gynecological Society*, 1895) I called attention to the fact that trachelorrhaphy did not cure the nervous symptoms for which these women applied to the surgeon, at least in a large proportion of cases. It did cure the inflammatory conditions. I did not then attempt to explain why, because my attention had never been called to the fact that the pain, tenderness, and the consequent nervous symptoms were due to a true neuralgic condition, largely the result of local depletion of blood. Unless the tear be very extensive, and unless adenoids prolong the process, bleeding lessens after a few months. But if continued for a long time or if a neuralgic condition is set up, probably a neuritis, then the nervous symptoms come on with pain and are continuous. In these late cases the trachelorrhaphy does not cure, but a high amputation will effect a cure. In the early cases the trachelorrhaphy will accomplish the desired result.

In order to prevent the nervous symptoms early operation for tears that extend through and above the internal os ought to be done. In these cases the unusual loss of blood ought to call the attention of the physician to the case, even if he had not made a careful physical examination before.

In old cases where the nervous symptoms are permanent, too much ought not to be promised to the patient from a simple trachelorrhaphy. In most cases it is better, after a thorough curetting and packing of the uterus, to amputate high up. This offers an almost certain relief, and the reason it does is that the actual removal of the neuralgic nerve-filaments is better than to close the tear, leaving them in.

I will not presume upon the patience of this learned Society by relating cases, but I would like to emphasize the fact that in my observation a large proportion of cases that required surgical relief because of pain and because of neurasthenic symptoms were those

in which there were soon after the tear considerable losses of blood, and in which for weeks and months afterward there had been slight bleedings.

That these cases are not generally anæmic, though they have neuralgia and neurasthenia, is proved by the examinations of the blood. To illustrate this point allow me to introduce briefly, without history, the blood-counts in a few typical cases.

Dr. William Stump, the pathologist of St. Luke's Hospital, made many examinations for me, and I was a good deal surprised to find how few cases showed any marked anæmia, though the physical appearance of the patients would warrant the supposition that anæmia was present.

CASE I.—Age, forty-three years; married, no children; suffering from neurasthenia with marked hysterical symptoms; great depression of the mind; severe neuralgic pains about the pelvis and legs. She is thin in flesh; though the skin is of fair color, the membranes are pale. She has a marked mitral disease. Had a severe uterine hemorrhage a month ago, and is now suffering from rather profuse and prolonged menstruation. The pelvis is normal, excepting the uterus is a little larger than normal. No leucorrhœa. Red blood-corpuscles, 4,350,000; hæmoglobin, 93, in terms of Fleischl's hæmoglobinometer.

CASE II.—Widow, aged forty years; stout, red-faced woman; large bleeding fibroid history of one year's duration. No nervous symptoms. Hemorrhage has been excessive and prolonged. Red blood-counts, 4,267,000; hæmoglobin, 90.

CASE III.—Age, forty-six years; married, no children; neurasthenia and beginning peripheral neuritis; very thin and pale; has had severe uterine hemorrhages in the past, but none during the last two years. No metritis; no leucorrhœa. Uterus in a retroverted position; cervix cicatricial; ovaries and tubes bound by adhesions. Red blood-counts, 4,185,000; hæmoglobin, 80.

CASE IV.—Age, forty years; four children, last one four months old. Severe hemorrhage after the first childbirth, good getting up from all but the last. No lactation; well-nourished, rounded figure; pale skin; nervous, sleepless; pain about the pelvis; inability to walk because of dragging sensation; slight hemorrhage whenever she moves. Deep fissure in the uterus going above the internal os. No nervous symptoms. Uterus measures five inches, slightly retroverted. Red blood-counts, 5,000,000; hæmoglobin, 80.

CASE V.—Age, forty-six years; married, no children; very full-blooded, red faced, well nourished. Cancer of the neck of the uterus extending to the vagina; fixation of the uterus; bleeding for months. No nervous symptoms; was persuaded with difficulty to consult a physician. Red blood-counts, 4,423,400; hæmoglobin, 85.

CASE VI.—Age, fifty years; one child, well nourished, pale, fair general health. Small operable cancer in the neck of the uterus, been bleeding

two months. No nervous symptoms. Red blood-counts, 4,475,600; hæmoglobin, 95.

In two cases of large bleeding fibroids in young women immediately after hysterectomy—red blood-counts, 3,850,000; hæmoglobin 85, in one; and in the other, red blood-counts, 4,534,000; hæmoglobin, 95. In both cases there was an external appearance of profound anæmia, with few nervous symptoms; not other physical ailment.

On the other hand, there is found a considerable number of young and comparatively healthy women who suffer very much because of the absence or great diminution of the normal menstrual hemorrhage. Their symptoms differ entirely from the other class who suffer great losses of blood each month, and who become invalids ultimately because of it.

Anæmia or chlorosis is not always, or even frequently, the cause of the delayed or suppressed menstruation. I am willing to admit that the appearance of the skin may often be fair or even ruddy and yet the anæmia may be very marked; again, a pale person may have a ruddy appearance of the membranes, a normal condition of the heart and arteries, and the blood-count well up to five million, showing that there is no real anæmia present.

It may seem rather out of place in an article on "hemorrhage" to discuss the conditions and the management of those cases whose chief symptom is a want of hemorrhage. Nevertheless, I beg to introduce here a few suggestions upon those cases of amenorrhœa which are so troublesome to treat and are so alarming to the friends. It has been stated by writers that delayed or absent menstruation is accompanied by an abnormally high blood-count. This would seem to indicate that anæmia was not its chief feature, and yet the routine treatment of these cases for years has been the administration of iron in some form.

In order to verify the statements of others regarding the condition of the blood, I have had several cases examined by Dr. Stump, who has not reported a single instance of a low blood-count in the cases of delayed or suppressed menstruation, while the hæmoglobin is high. On the theory that the chief use of iron is to increase the number and vitality of the red blood-corpuscles, it would not seem that in these cases the prolonged administration of iron could be of much service. Indeed, I think it is the common experience of practitioners everywhere that such is the fact. Iron has fallen

into great disrepute in certain quarters, and we hear a great deal about the uselessness of all preparations of iron as general tonics. If we look, however, to the cases of acute primary anæmia where the blood-count is low, the membranes are pale, and the skin often, though not always in this climate at least, is white, where there are palpitation of the heart, ringing in the ears, and scanty menstruation without loss of flesh, with, perhaps, very slight elevation of temperature, the use of Bland's pill is about as certain a cure as anything we know of in the whole range of internal medicine. This remedy alone is probably worth all the other measures combined, and would seem to show that when iron is really needed, its administration is followed by very marked results. Scheimberg's ferratin also promises as good results.

The fault seems to have been in the matter of diagnosis, taking one symptom, delayed or suppressed menstruation in young women, as necessarily meaning anæmia. A physical examination of these cases of delayed or suppressed menstruation almost always reveals something wrong with the pelvic organs, due, as I believe, in a large proportion of cases, to the influence of a cold which checks normal menstruation and produces an inflammation in the perimetrial tissues—a perimetritis—and is followed by a retraction of the adhesions, cutting off the normal circulation of the uterus and its appendages, so that if time enough is allowed to elapse after the accident, an infantile uterus is found, with, perhaps, no other discoverable lesion. The administration of iron will not help these cases, and the examination of the blood shows why this is so; but galvanism judiciously used with bromides and diuretics will usually accomplish a cure.

This digression seemed necessary in order really to emphasize the opposite state of affairs found after excessive uterine hemorrhages. It will be easy to see the difference in the quality of the blood of these two distinct classes of patients if I briefly mention here, without history, the blood-counts and the estimation of the hæmoglobin in a few cases of suppressed and delayed menstruation.

CASE VII.—Girl of twenty-one years, in apparently perfect health, excepting that she had not menstruated within two years, presenting a fine appearance, but with congestive outbreaks of hysteria, great nervous restlessness and loss of sleep. Infantile uterus with no other lesion. Red blood-counts, 4,465,000; hæmoglobin, 90.

CASE VIII.—Girl of twenty-eight years, perfect health, well formed, good color, without menstruation for four years. Infantile uterus, which

is movable. No ovarian trouble. Uterus about three-fourths of an inch; she has headaches and periods of fainting. Red blood-counts, 4,712,000; hæmoglobin, 95.

CASE IX.—Girl, twenty-two years; appearance of extreme anæmia; no nervous symptoms; able to work; well nourished; infantile uterus; absence of menstruation for a period not ascertained. Red blood-counts, 4,444,500; hæmoglobin, 85.

CASE X.—Girl, twenty-eight years, large, well nourished, red faced, feels well, able to work; has menstruated but twice during the last two years. No nervous symptoms; fairly developed uterus; no pelvic trouble. Red blood-counts, 4,194,280; hæmoglobin, 85.

CASE XI.—Tall, thin girl, very blonde, perfectly white skin, white lips; very scanty menstruation, accompanied with much pain. Red blood-counts, 4,710,000; hæmoglobin, 95.

CASE XII.—This case is remarkable in that every physical appearance of anæmia was present, with great languor, frequent faintings, and so much palpitation that she could not dance or exercise freely. Menstruations from five to eight weeks apart; very scanty. Fair appetite, with considerable loss of flesh during the past six months. Iron preparations had been administered continuously during much of this time. Red blood-counts, 5,490,000; hæmoglobin, 100.

This examination of the blood showed clearly why the line of treatment which seemed rational had failed to do any good. The uterus was of normal size and without evidence of disease. The correction of the diagnosis in this one case was sufficient compensation for the work so admirably done by the pathologist.

It has long been known that after severe uterine hemorrhages occurring after childbirth and at the menopause, an attack of rheumatism is very likely to occur. An examination of a considerable number of cases of chronic articular rheumatism in middle-aged women will show a history of excessive hemorrhage at some one or more periods in their lives, and the rheumatism following was directly traceable to it. These are not cases of slight occasional hemorrhages, but of constant furious hemorrhages. In the only case that I now have under observation of this nature, an examination of the blood shows the following: Red blood-counts, 5,180,000; hæmoglobin, 100.

Just what this relation is between severe uterine hemorrhage and the sudden onslaught of rheumatism we do not know enough of the blood-making processes of the human body to say. But the administration of diuretics seems rational and proves beneficial.

XVIII. THE ANATOMY AND FUNCTIONS OF THE PELVIC FLOOR
IN WOMEN, AND THE OPERATION FOR ITS REPAIR WHEN
LACERATED.

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PROBABLY no part of the female pelvis has been the subject of so much painstaking thought as the pelvic floor, or, more particularly, that portion of the pelvic floor known as the perineum. It would therefore seem somewhat audacious to attempt to offer anything new, as the present teaching concerning the dynamics of these parts, especially of the functions of the female perineum, leaves little to be said. With the elaborate exposition of its functions and anatomy, however, students and general practitioners become confused and discouraged.

It shall therefore be my endeavor to simplify, as far as possible, the important points of the subject. The essential feature which distinguishes my position from that of many authorities is my belief that the essential structure in the floor of the pelvis is not the perineum, but rather the levator ani muscle. Page after page in gynecologic literature has been expended in describing the perineal body, and opinions have varied from the elaborate theory mentioned above to the more recent dictum of Emmet that "no such body as a perineal body exists save as an imaginary one." Inasmuch as there is no particular structure in the perineum which is not common to the pelvic floor, in just so much am I in accord with Dr. Emmet.

In order that the points at issue may be clearly defined, I may, perhaps, be permitted to state, somewhat axiomatically (1) that the important, essential structure of the pelvic floor, and the one upon which all active functions depend, is the levator ani muscle and its fascia; (2) that the functions of the perineum are entirely passive, and may be classified as follows: (a) The perineum fills a certain amount of anatomic space between the outlets of the two canals, the vagina and the rectum; (b) it gives attachment to the movable end of the levator ani muscle, and (c) it must get out of the way of the advancing head in parturition and of fecal matter in defecation—or, more correctly, to be drawn out of the

way. All active movement of the pelvic floor is accomplished by the various muscles composing the muscular diaphragm of the pelvis. These muscles are all under one nervous control, all act in unison, and all of the less important ones are simply accessories of the levator ani proper.

Considering as a unit the muscles and fascia which compose the pelvic diaphragm, it may be said that together they make a cone-shaped muscle, with a bony origin and a tendinous attachment, the bony origin being the entire circumference of the pelvis, and the attachment the tendinous centre known as the perineal raphe. A vulgar illustration of the shape of this combined muscle is an ordinary meal-bag with a hoop in the top to keep the mouth open and a string tied around the middle of the bag, concentrating its fibres at one point. The bag from the hoop to the string represents the levator ani muscle and its accessories. All of the divisions of this great muscular diaphragm reach directly from the bony origin of the pelvis to the tendinous raphe of the perineum, and, with the exception of the levator ani proper, terminate there. These divisions are the superficial and deep transversus perinei, the bulbo cavernosi or constrictores vaginæ, and the erectores clitorides. The fibres of the levator ani, assuming a more or less oblique direction and interlacing with each other, sweep entirely across the outlet of the pelvis, and are bound together and to the fascia in the raphe of the perineum, at which point they anastomose with the internal sphincter ani. Practically, therefore, the result of its contraction is to elevate this point of attachment, and thus, to all intents and purposes, this point may be regarded as the distal point of insertion of this muscle, as well as of all others of this group. The conical shape of the muscular diaphragm is not so apparent when the parts are quiescent as when the perineum is forced down by intra-abdominal pressure, as in parturition or defecation. This conical shape may be readily demonstrated in a subject who is anæsthetized by hooking (through the anus), the two index-fingers above the sphincter ani muscles and then dragging down strongly.

Accepting, then, the description of these muscles as I have given it, with a bony attachment above and a tendinous insertion below, we are in a position to inquire into their functions. Briefly stated they are: (1) to assist in parturition; (2) to assist in defecation, and (3) to assist in coition. The contraction of all the muscles of the pelvic floor has one important result, viz., lifting the point of

common insertion—the perineum. Before the muscular diaphragm can be stimulated to act, however, the point of insertion must be depressed. This is accomplished in parturition and defecation by the intra-abdominal pressure which forces down the floor of the pelvis, and in coition by the admission of the male organ. To illustrate the action of this muscle more in detail, it may be said that as the child's head advances in parturition the pelvic floor gradually yields and descends until the head reaches that point at which the occiput engages under the symphysis. As soon thereafter as the head in advancing to the front affords opportunity to the levator ani to contract, exerting its power along a line posterior to the point of greatest protrusion of the head, this muscle contracts, and, sweeping the perineum over the face of the child, lifts it up into its proper position. During this process the head does not necessarily advance. The intra-abdominal pressure holds it firmly while the perineum is lifted back into its normal position by the levator ani, thus leaving the child's head without the genital canal.

In defecation the levator ani muscle acts in precisely the same way, with the exception that its movable point of insertion is in front of the protruding mass instead of behind it. Its action, however, is most apparent in a condition of extreme constipation. Let us consider then, step by step, the details of this important function, viz., defecation. Let us suppose the rectum to be distended by a large, solid, fecal mass. In order to force this out the subject draws a long breath, fixes the abdominal muscles, thus increasing the intra-abdominal pressure and forcing down the rectum and its contents together with the floor of the pelvis. The sphincter ani muscle is made to open only by forcing down the pelvic floor. The structure of the levator ani in the median line between the tip of the coccyx and the anus is almost entirely fibrous in character and devoid of elasticity. As the anus descends, its posterior segment swings backward in an arc the radius of which is the distance from the tip of the coccyx to the anus. The perineum also descends and swings slightly to the front. These two movements naturally open the anal orifice, and, while the intra-abdominal pressure maintains the position of the contents of the rectum, the levator ani lifts the perineum over it and the fecal matter is extruded in a manner analogous to the mechanism of labor. While this process is more plainly demonstrable in cases of constipation, it is pursued to a greater or less degree in every act of defecation.

The process of coition need not be particularized, except to state that in this act the function of the floor of the pelvis is performed by the levator ani muscle in lifting the perineum.

It becomes apparent, therefore, that the proposition laid down in the beginning of this paper, that the essential structure of the floor of the pelvis is the levator ani muscle and its accessories, is true. It is likewise manifest that the functions of the perineum are entirely passive and may be summed up in three concise statements, as follows: (1) To fill in a certain amount of anatomic space; (2) to give attachment to the levator ani and its accessories, and (3) to get out of the way of the advancing head of the child or of the protruding fecal mass.

We are now ready to lay down the proposition that injuries to the pelvic floor are serious in proportion to the degree of impairment which they produce to the structure and functions of the levator ani. Lacerations may occur directly in the median line of the perineum, splitting the raphe, and so dividing it into two equal parts. In my experience such lacerations occur in unassisted labors in which the head is forced down by unusually strong pains so rapidly that the levator ani and its fascia are not allowed time to stretch. In hasty deliveries by forceps the median tear is also not unusual. In this injury the muscular fibres are rarely interfered with. The two ends of the transversus perinei are separated, and the tendinous centre to which all these muscles are attached or bound down is destroyed. The muscles are therefore set free, and the more powerful ones, the transversus perinei, retract, thus drawing the torn edges of the fascia with them into the tissues on either side of the pelvis. The floor of the pelvis, from the pubis back to the rectum, and the fibres of the levator ani muscles, being split along the median line, are drawn aside by the contraction of the transversus perinei as one would separate two halves of a portiere. This illustration was original with Dr. Emmet, and is most apt.

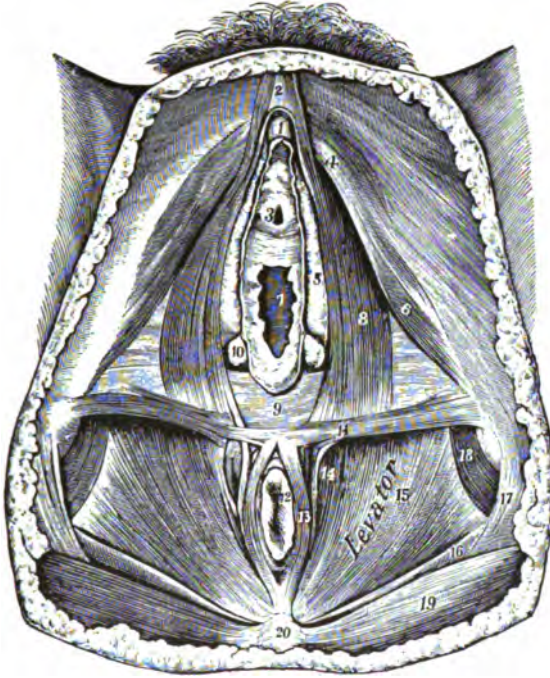
In the majority of instances the laceration is very irregular in its outline, and usually passes obliquely across the perineum, and follows either one or both of the sulci of the vagina. The lacerations may or may not extend into the rectum. A careful study of such injuries has been made by both Dickinson, of Brooklyn, and Reynolds, of Boston, and it has been determined that the tendinous centre escapes, but as the laceration extends across the fibres

of the levator ani and the transversus perinei and their fasciæ of the side on which the injury occurs, the result is the same, although not to an equal degree; the transversus perinei retract upward and outward into the deeper structures, carrying the fibres of the levator ani and the fasciæ of both muscles with them. The result of this injury is that the function of the levator ani is destroyed. The distal end no longer has a firm point of attachment. The muscle therefore can no longer assist either in defecation or in parturition. The support which it ordinarily gave to the posterior wall of the vagina and the anterior wall of the rectum is removed. The outlet of the vagina gapes and the anterior wall of the rectum with the vagina prolapses downward, forming a rectocele.

Studying this condition, now, as applied to the two functions, parturition and defecation, we find that in the former, as there is no longer a perineum, it is no longer placed under the obligation of getting out of the way, and therefore there is no function to be performed by the levator ani muscle. Parturition, as far as the floor of the pelvis is concerned, is simple and easy, and usually occurs without deleterious influence upon these parts. Defecation, on the contrary, is seriously interfered with. The anterior pull upon the sphincter ani no longer obtains, and the orifice dilates with difficulty. This dams back, as it were, the contents of the rectum, which now tend to crowd down the anterior wall and make its exit through the vulva. It becomes apparent that this unfortunate consequence is the direct result of impairment of the function of the levator ani muscle. The effect of this laceration upon the position of the uterus is due to the fact that when the insertion of the levator ani is destroyed the prolapse of the posterior vaginal wall gradually carries the cervix uteri downward and forward until finally the fundus retroverts, and, in aggravated cases, the entire organ is protruded through the vulva.

It remains now to consider the condition when the laceration has extended through the sphincter ani into the rectum. In these cases the function of the levator is destroyed, and the perineum no longer offers resistance to the advancing head of the child. In defecation, the sphincter muscle being torn, it cannot offer resistance to the fecal mass; therefore, a rectocele is not developed, and no malign influences are brought into play to drag down and displace the uterus. While, under these circumstances, there is no occasion for the levator ani muscle to act, the condition of the

FIG. 1.

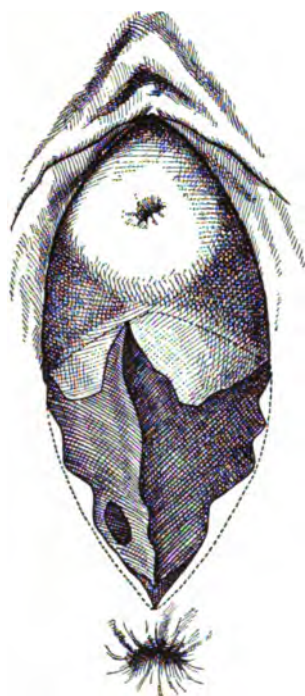


The Muscles of the Pelvic Floor, and the Relations of the Sphincter and its Fellows.

Note the close union with the tendinous centre of the perineum and the interweaving with the transversus perinei and the bulbo-cavernosus; also the lateral flattening of the anus and the tendon front and rear. (DICKINSON, modified from BREISKY and SAVAGE.)

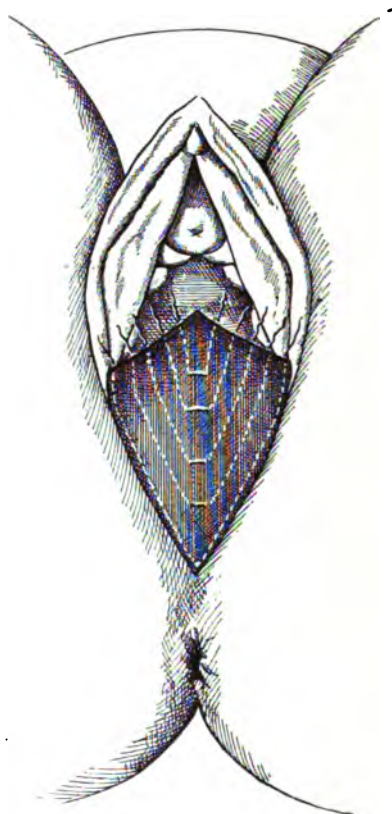
- | | |
|--|---|
| 1. Glans clitoridis. | 11. Superficial transversus perinei muscle. |
| 2. Corpus clitoridis. | 12. Anus. |
| 3. Meatus urinarius. | 13. Sphincter ani externus. |
| 4. Tendon of ischio-cavernosus muscle. | 14, 15. Levator ani muscle. |
| 5. Bulb. | 16. Coccygeus muscle. |
| 6. Ischio-cavernosus muscle. | 17. Great sacrospinous ligament. |
| 7. Vaginal entrance | 18. Obturator internus muscle. |
| 8. Sphincter vaginae or bulbo-cavernosus muscle. | 19. Gluteus maximus. |
| 9. Fossa navicularis. | 20. Os coccygis. |
| 10. Bartholin's gland | |

FIG. 2.



Showing area to be denuded.

FIG. 3.



**Showing method of insertion
of sutures.**

patient is even more deplorable, in that there is no longer control of the rectum, and constant fecal discharges and escape of gas annoy and vex the patient beyond endurance. It may be incidentally remarked that when the laceration results in absolute destruction of the perineum and extends through the sphincter muscle into the rectum, the uterus, as a rule, remains in normal position, thus demonstrating the fact that the perineum cannot be regarded as a support to the uterus, as was formerly taught.

The Operation. The only active function that any muscle is called upon to perform is that of contraction, but in its contraction it can accomplish nothing unless it has a fixed point of origin and a movable point of insertion. The levator ani is no exception to this rule. Any operation for the repair of the pelvic floor, in order to be effectual, must aim to restore to this muscle its distal attachment. It has been seen that in lacerations of the perineum of every form the torn ends of the muscles, with their fasciæ, have retracted into the tissues on either side, and must be brought again into apposition in order that continuity may be restored. This is a simple matter in the primary operation performed immediately after delivery; but, in cases in which the injury is of long standing, before these tissues can be drawn out of their retracted positions and brought into apposition, the rectocele must be carried back out of the way so that approximation of the muscles may be effected at their original site in front of the rectum. In other words, the tissues constituting the rectocele must be carried upward and backward, and the anus must be drawn forward and upward, and, at the same time, the ruptured edges of the fasciæ and the tendinous edges of the muscles must be brought in contact. This, I find, can be accomplished by a procedure which is readily understood, extremely simple in its execution, and effectual in its results. Its advantages as compared with other operations are that it restores the perineum to a more nearly normal condition than any other operation known to me; moreover, convalescence from the operation is entirely devoid of pain, and the patient may assume any position in bed which affords her comfort, and, if she cannot afford to pay for the constant attendance of a nurse, the operation permits of her getting out of bed to attend to the calls of nature. This commendable feature is explained by the fact that only such tissues as normally belong in apposition are brought

together, and all stitches are passed through the mucous membrane inside of the vagina instead of through the skin.

It is hardly necessary to say that the field of operation is made aseptic. By rolling out the labia on either side the remains of the hymen can be followed down from the lower border of the meatus urinarius until it finally terminates in an abrupt caruncle. This caruncle is caught by a tenaculum or artery-clamp, and snipped off with scissors, thus serving as a landmark to indicate the outer boundary of the denudation. Then the caruncle on the opposite side is sought and treated in the same way. A point is now selected which marks the highest border of the rectocele, and a bit of mucous membrane is snipped off by scissors to mark its site. This point on the rectocele is then connected with the outer landmark by an incision made by drawing a scalpel from one point to the other, and extending through the mucous membrane. A similar incision is made upon the opposite side, and then a third, connecting the two outer landmarks by following the curve of the muco-cutaneous juncture, and completing the outline of the denudation. This large, triangular flap is dissected off in one piece by stripping it from the underlying tissue with the handle of a scalpel. It is best to begin the denudation near the outer landmarks, as the line of cleavage can be easily found at this location. Thus, by catching a point of the flap between the thumb and index-finger and setting it free a short distance, and rolling it toward the axis of the vagina over the finger, the underlying tissue can readily be stripped off by successive short strokes with the handle of the knife, keeping constantly in mind the fact that the operator must closely hug the mucous membrane.

In cases in which the flap has been carefully outlined and the above method of removal followed, it is no unusual experience to remove the flap in one-and-a-half to two minutes' time. This denuded surface corresponds very closely to that described in the Hegar operation. The point of originality consists almost exclusively in the manner in which the stitches are passed. Catching the tissues at the upper part of the rectocele with an artery-clamp, which is elevated by the hand of an assistant, and with the index-finger of the left hand in the rectum, the needle is inserted about one-fourth of an inch from the angle of the denudation. Passing through the mucous membrane, the needle is swept out toward the side of the pelvis and gradually curved toward the median line until it emerges

near it, and about an inch and a half down the rectocele. It is then withdrawn, and again inserted about one-eighth of an inch on the opposite side of the median line, and swept back through the tissues in a reverse direction until it emerges upon the mucous membrane at a point equally distant from the angle of denudation and corresponding with the point of insertion. A second stitch is inserted about a quarter of an inch further down the edge of the mucous membrane, and made to pursue a course corresponding to the first suture.

In inserting these sutures they should be passed sufficiently far down the rectocele to carry it entirely up into the vagina when the sutures are tightened. The two or three succeeding sutures which are similarly passed bring together the separated edges of the muscles and fasciæ in front of the rectocele. The last suture is inserted just above the position of the caruncle, which was removed on one side, swept down around the entire circumference of the denuded surface, and made to emerge above the site of the corresponding caruncle on the opposite side. To understand the action of the sutures as inserted in this method, the fact must be borne in mind that the vaginal mucous membrane and underlying fasciæ through which the two first sutures are passed afford a more resisting tissue than that which makes up the rectocele. Therefore, when these sutures are tightened, the line connecting the point of exit and insertion of each suture near the median line of the rectocele is drawn up under a line connecting the points of insertion and emergence in the mucous membrane, and thus, to that extent, lifts upward and backward the rectocele. The same principle applies to the remaining sutures, so that their combined effect is not only to unite the torn borders of the muscles and fasciæ, but at the same time to lift the anus upward and forward, and so restore it to its normal position. The last suture surrounds the edges of so long an incision that these margins will usually be found to gape a little along the line from the point of insertion of the last stitch to the bottom of the fourchette. To secure primary union and prevent the secretions from entering this little gap, it becomes necessary to insert one or two superficial silk or catgut sutures at this point. The entire strain, however, is taken by the sutures which are passed through the mucous membrane of the vagina.

It will be noticed that the sutures, instead of being passed through the skin, as is the case in Hegar's operation and also in

that of Emmet, are inserted in the mucous membrane of the vagina, and take their points of support from the fasciæ, thus lifting the rectocele and the anus instead of dragging them down, as is true of the operations mentioned. This method of passing the sutures seems to me not only mechanically more nearly correct than others, but also has the additional advantage of not causing pain. The suture material which I prefer is silver wire, about No. 25, which is inserted by hooking it into a carrying-thread of silk attached to a strong, straight needle.

When the laceration involves the sphincter ani and the anterior wall of the rectum, the tear in the rectal wall is first closed by interrupted catgut sutures which unite merely the mucous membrane of the rectum. In closing this tear the sutures should be continued from the upper angle down beyond the outer border of the torn ends of the sphincter muscle, which are indicated by dimples in the tissues on each side. Of course, the denudation of all the parts to be brought together in the perineal operation is made previous to the insertion of this suture. The silver-wire sutures are now passed, as previously described, with the one exception that the two final sutures are both made to include the ends of the sphincter muscle. Previous to passing any sutures, however, the sphincter muscle is grasped between the thumb and finger of both hands and stretched as much as possible in order to secure as large an anal opening as the length of the muscle will permit.

If, after tightening the sutures, the orifice of the anus seems too small, it is my custom to insert a bistoury at the posterior edge of the muscle and divide it subcutaneously clear across its entire structure. This affords sufficient patency to the orifice, and at the same time does not interfere with the function of the muscle in maintaining fecal continence after the healing has occurred. The explanation of this latter fact is as follows: It is a common experience with all surgeons to find that the sphincter ani can be completely divided in cases of fistula in ano, not only in one direction, but even in two, and the function of the muscle not be interrupted after recovery, provided the incision in the muscle is not made *anteriorly*. If this provisional incision is made in the median line anteriorly, the same consequences follow as in the rupture of the perineum during parturition, viz., the transversus perinei muscles separate, retract into the deeper structures, and so draw

apart the two divided ends of the sphincter that it becomes impossible for them to unite.

After-treatment. The after-treatment is comparatively simple. As a rule, no anodyne or sedative is required. If the patient is uncomfortable, she can be relieved by changing her position. The open-bowel treatment is employed. This is accompanied on the second day after the operation by giving Seidlitz powders in divided doses every half hour until four doses have been taken. When the laceration has extended into the rectum, all rectal injections are prohibited. The patient is kept upon a liquid diet, consisting of soups, broths, hot water, etc., during the first two days, but no milk is allowed. After the bowels have been freely opened the patient is allowed a small quantity of meat, such as chops, steak, roast-beef, with toasted bread. No vegetables are permitted. Every morning a dose of Apenta water is given, and a free, watery evacuation of the bowels secured. Apenta water acts especially well in these cases.

A self-retaining catheter is usually inserted into the bladder at the close of the operation, and left there two days. Through this the urine is allowed to escape every six or eight hours. After the second day the catheter is removed and the patient is usually able to void urine naturally. The parts should be bathed after each urination. The stitches are not removed until the tenth day, and the patient is kept in bed until the seventeenth day.

DISCUSSION.

DR. GEORGE M. EDEBOHLS, of New York : I should like to speak first of the paper of Dr. Hayd. The one thing that is a matter of congratulation to us who have steadily adhered to our belief, both in the physiological character of the Alexander operation and in its results (of which number I have been one), is the fact that the trend of present opinion is in favor of that operation. Operators, as a body, have considered it as almost criminal to open the peritoneal cavity of a woman who has no pelvic adhesions, and create adhesions where they are not necessary to cure the woman—in other words, where the uterus is free, and there are excellent and natural means of correcting that retroversion, it has been held that the surgeon has no right either to open from above or through the vagina, and sew the uterus fast to anything in the peritoneal cavity, or even to shorten the round ligaments intraperitoneally. In this respect the paper is a great source of

gratification, because it shows that one after another the surgeons are becoming converted to the idea that the Alexander operation is a physiological one, and that the patient can be left in an absolutely normal condition as regards future pregnancy. The main fact that is coming to be recognized is that the operation is the only legitimate one for movable retroversion of the uterus. I know of no one who can shorten the round ligament more neatly than Dr. Kellogg, of Battle Creek. He makes the incision, draws out the ligament, and fastens it by interweaving it with the fascia. The only objection seems to be that it is placed in an unnatural position. The old operation, referred to by Dr. Hayd, is the original Alexander operation. It consists in looking for the ligament at the external ring, shortening it there, and after drawing it out, attaching it somewhere or other. A slight objection is that the ligament is usually weak within the canal, and strongest within the abdomen. If you pull it out of the external ring you are liable to tear it within the canal. I have had an illustration of that this week. You really open the whole anterior wall of the inguinal canal, and, in the opinion of some, weaken that canal; but that is a matter of opinion. I believe that you not only do not weaken that canal, but that if the operation be properly done you leave that canal after the operation even stronger than it was before; in other words, you first open the anterior wall of the canal, then shorten the ligament, and then do a Bassini operation for the radical cure of hernia. This seems like a big thing, but it is really one way of closing the wound by attaching the internal oblique low down, then closing the external wall of the canal over that. You are then absolutely sure there will be no hernia. If the operation is done aseptically, you are almost absolutely sure to have union by first intention, which is what is desired.

DR. W. GILL WYLIE, of New York: In suitable cases, I admit that Alexander's operation is the ideal one, and much better than any other attachment of the uterus to the abdominal wall. Many operations of this kind, once so popular, are now nearly obsolete. But I do think the operation should be done by men skilful enough to do it without opening the canal. I have not done the operation many times, because, when every other condition is cured in these cases except the displacement, I believe not very many of the patients need it. The trouble now is that the operation is done in cases in which it is really not needed. No one who is not a specialist is sufficiently experienced to justify him in undertaking the operation; it requires a great deal of technical skill. When done by well-trained and experienced surgeons it is a simple operation. The whole difficulty is to recognize the fact that the pillars are inverted, and to bring

out the ligament without injuring the cord or the ring itself. In my operations now I do not make the mistake of opening the ring or injuring it in any way; one should cut down upon the ring and expose the tissues sufficiently to get at the fibres, and then they must be everted. The columns should be exposed and also the glistening tissue of the true cord. When the operation has been properly done, the ligament should really form a plug to the ring, and so reinforce it; but I can hardly agree with Dr. Edebohls that the operation leaves the canal stronger than before.

Regarding the paper of Dr. Cragin, it gives my own views very completely. Only an expert can do the vaginal operation satisfactorily, and only an expert should do the abdominal operation. Diseased tubes and ovaries can be removed by either route with about an equal degree of satisfaction. I do not think there is any great difference in the death rate by the two methods, and it is difficult to state which is the better. In my earlier cases I used ligatures; in my recent ones I have employed a few clamps. The next step in advance should be to do the operation in the vagina in such a way that the vagina will approach the normal shape. In many cases the vagina has been decidedly shortened. One advantage of the forceps is that they preserve the shape of the vagina, and allow of keeping in gauze rather longer.

Referring to the last paper, that by Dr. Goffe, I would say that it expresses certain views which I have already embodied in two previous papers. The diagrams exhibited hardly present the subject with strict anatomical correctness. I think Dr. Goffe confuses the subject when he says that the edges of the transversus perinei retract inward. My belief is that when the external muscles are torn they retract and become everted, and that the tissues forming a part of the levator ani retract inward and upward. It is the latter which we must secure and reunite if we would restore the function of the perineum. I believe that the function of the perineum is active, and that it directs the head upward and the fecal matter backward. The great mistake is not to recognize that some of the tissues invert and retract laterally, and others become everted. This everted tissue is often sewed up by the general surgeon. A recent case of badly torn perineum was sewed up by a very good general surgeon, according to the old Ségond method. When the family physician investigated the local condition, because of the complaints on the part of the husband, he found that he could not insert the index finger. Several European surgeons saw the case and advised an operation for the relief of the atresia. Meanwhile she became pregnant, and I was asked to take charge of her in her confinement. As the head descended it everted the vagina in such a way that it was distended for its whole length. I then had

to cut open the vagina and deliver the head, and again sew it up. I think in Dr. Goffe's operation a good deal of everted tissue would be sewed up, and a good deal of inverted tissue would not be sewed up. I am sure the results would be bad.

DR. A. VANDER VEER, of Albany: The paper of Dr. Hayd I believe represents the consensus of opinion of operators at the present time. We have witnessed the up-and-down wave of the Alexander operation since its first introduction. I am under the impression that the suggestions made by Dr. Hayd in the paper are worthy of our careful consideration. I do not believe that this operation is required as often as it is done by those who report a large number of these operations. The operation can often be avoided by a line of treatment familiar to most of us; a great deal of good results from systematically instructing the patient as to what may be accomplished by frequently assuming the knee-elbow or chest position. It is more conservative, in the relief of complications, to avoid the operation, yet it is a proper one, as we all recognize.

The paper of Dr. Cragin presents in a correct manner a classification which I think we would all make. I am frank to say that the operator who is not familiar with the vaginal route, or who is not absolutely clear with regard to the anatomy of the plevia, would better operate from above. I believe I was one of the first to operate by the vaginal route. I was well satisfied with this operation, which was done some eighteen years ago. I am satisfied now that I have met with cases in which this operation is a proper one, but it should be selected with care. One should be exceedingly cautious in doing the vaginal operation to ascertain that the ovaries and tubes are in proper condition.

Dr. Ford's paper should receive the careful consideration of the general practitioner. And here I would most earnestly indorse such exercises as bicycle riding for our young women, and our married women, and for women suffering in various ways; we have advanced in that direction, and I am sure I have seen a vast amount of good done by such exercise. I am satisfied that one operation has been overlooked, to which our attention was called many years ago by Dr. Emmet—the removal of hard cicatricial tissue by what he termed at one time “high amputation.” I have a case of lacerated cervix at present under observation, in which if the simple operation were done—*i. e.*, freshening the edges and covering over the hardened tissues—the nervous, sensitive tissues would only be still further irritated by such superficial operating. We should not cover in these lateral lacerations by the so-called operation of closure of the cervix.

Dr. Goffe's paper brings out that old familiar muscle over which

we have struggled so many years, but he brings it out in a clear manner; his blackboard illustrations seemed to me particularly instructive. We should impress upon the obstetrician the importance of an understanding of this muscle.

The manner of operating for rectocele and of inserting the sutures from above is certain to yield results which will please those who follow it. When I saw Mr. Tait do his flap-splitting operation he put in the sutures and freshened the edges somewhat in the manner described by Dr. Goffe, although Tait does not describe it so clearly. I have never seen the unfortunate result referred to by Dr. Wylie. In regard to the levator ani and the transversus perinei, we must, as nearly as possible, restore the anatomical structures to their original condition, and unless we do follow out the points so clearly referred to by Dr. Goffe we will not get the desired result.

DR. F. W. SEARS, of Syracuse: Regarding the point alluded to by Dr. Goffe, that the shoulders of the child frequently lacerate the perineum, I would say that my own experience leads me to believe that he is correct in this assertion. I brought up that point in our local Society several years ago, and stated then that my observations had taught me that the shoulder frequently catches in the perineum and produces severe laceration, even into the rectum. This should be a hint of some service to the obstetrician.

DR. FORD: With regard to the repair of the perineum, in Utica we employ an operation very similar to that of Goffe. We pass the sutures at first not through the mucous membrane, but about one-quarter of an inch within the denuded surface, passing them from above downward, as described by Dr. Goffe; then taking the end of the suture on the left side, we cross it over and take a very deep bite on the other side, coming out under the end of the muscle. Making, as it does, a figure-of-eight as you cross it, it hoists the perineum up to the normal position, and gives an operation which has been more satisfactory to us than any other method hitherto employed. I do not know whose operation it is, but I know that it is an operation which never lets the perineum down again. The first indication, pushing the rectocele back, is accomplished by the insertion of almost the first suture. The perineum when so restored is very natural in appearance, and the whole field of the operation is within the vagina.

DR. HAYD: I am pleased to see that there is such general acceptance of the Alexander operation. There can be no question but that it is an ideal surgical procedure, and in properly selected cases gives the greatest comfort to the patient and the greatest satisfaction to the operator. I beg to assure Dr. Edebohls that whatever he writes or says we, in Buffalo, accept with the greatest pleasure; but I do not

think he can persuade us that it is necessary to open the canal in doing an Alexander operation; we have done too many of them, and too easily, without opening the canal. Nor am I prepared to accept his statement that it is necessary to resort to a Bassini operation to make the canal better than nature has done in these cases. I can understand that occasionally, owing to an abnormal relation of the ligament, or to very dense adhesions, the cord might snap; in those cases it might be necessary to open the canal, but in no other conditions can I imagine such a course necessary. I think it is a good point in approximating the pillars of the ring that the ligature should not be tied too tightly. I am satisfied that many cases of suppuration result from the devitalization resulting from too great tightening of the suture about the cord. The reason why I have separated the fixed point of the ligament, and have not been satisfied with the method described by Dr. Wylie is because in pulling on the cord we usually bruise the detached end so much that its vitality is destroyed. Occasionally where the ligament is, as it were, free on this knuckle of fat, we can, with great ease, draw down the cord without separating its fixed end.

I did not expect to present anything new to-day; it was simply the old operation; but I desired to accentuate some of the points not brought out by those who originally formulated this beautiful surgical procedure. We should do away with all cutting instruments in the operation just as soon as the ring has been exposed. If we continue the use of the knife and scissors, we lose the landmark—the knuckle of fat. With the finger we can feel in the fat the terminal fibres, and these will lead us to the main portion of the ligament. I have not failed once since I have adopted this method. Kellogg operates beautifully—I never saw his equal in performing this operation. I have seen him operate in this way a number of times, and I have tried his plan, but have failed, and have, therefore, thought it better to discard his operation and content myself with the operation presented to-day.

DR. CRAGIN: The case in which the kidney was removed through the vagina, concerning the indication for which Dr. Edebohls asks, was that of a woman, eight and a half months pregnant, who had a dilated kidney obstructing the parturient canal. I could not push it up, and the only thing was to remove the kidney through the vagina. This was done, and the woman and child are both well. There is a paper in preparation on this subject, and hence I did not go into details.

DR. GOFFE: I am very much gratified that the few ideas I have presented have met with approval at the hands of prominent members of the Society. In doing the operation I use a silver-wire suture,

or one of silkworm-gut. I dispose of the silver-wire sutures as shown on the blackboard [diagram]. The two ends are rolled upon themselves inside of the vagina, and the line of suture remains perfectly clean and free from corrosion. In removing the sutures I uncoil the wire and snip the loop with scissors. The silkworm-gut is also left long, so that it can be cut and removed.

The point made by Dr. Wylie I endeavored to make clear. As soon as the point of attachment of the levator ani muscle is destroyed, it retracts, and this attachment is above the point of insertion. Of course, it draws upward into the deeper structures. Then the rectocele rolls downward and backward. We must bring those two together. I think this is accomplished by the operation as described.

XIX. THE OTHER KIDNEY IN CONTEMPLATED NEPHRECTOMY.

BY GEORGE M. EDEBOHLS, M.D.,
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WHEN nephrectomy is either contemplated or becomes a possibility in the course of any operation contemplated, a knowledge of the presence and condition of the other kidney becomes of prime and dominating importance.

A number of cases are on record in which a kidney removed by nephrectomy proved, after the necessarily resultant death of the patient, to be the only kidney the patient had ever possessed.

The writer, in his operative work, has met with several cases of single kidney. In none of these patients, fortunately, was there any indication for nephrectomy.

The presence of two kidneys can usually be determined by palpation. Mistakes, however, are possible in this connection. An enlarged gall-bladder has frequently been mistaken for a right kidney. The writer has himself committed this mistake in a case presenting a movable, kidney-shaped tumor in the right lumbar region. An exploratory lumbar incision proved the tumor to be a distended gall-bladder. Further exploration, moreover, established the complete absence of a right kidney.

Palpation, while *generally* to be relied upon to determine the presence of the kidney, *just as generally fails* to give us exact and satisfactory information of the condition of a kidney. It is nearly

or quite impossible by palpation alone to diagnosticate a case of nephritis, or to determine from which kidney a renal hemorrhage proceeds. A majority of cases of surgical kidney, multiple abscess of kidney, purulent nephropylitis, and renal tuberculosis elude diagnosis by palpation alone. Many cases of tumor of the kidney, even, do not produce sufficient enlargement to be defined by palpation.

Visual inspection of the interior of the bladder and catheterization of the ureters give valuable aid in determining the presence and the condition of each kidney. Cystoscopy is a comparatively easy and, if aseptically carried out, safe procedure both in the male and female, and should always be employed as a preliminary in contemplated nephrectomy. The results of cystoscopy, however, will not invariably prove completely satisfying. It may not always be possible to recognize distinctly *both* ureteral orifices. In that case a certain doubt must remain, first as to the presence of a second kidney, and secondly as to the character of its secretion, if present. Again, even if both ureteral orifices be distinctly seen, the result of watching them may prove misleading. Pus kidneys, especially cases of suppurative nephropylitis, may discharge their secretion into the bladder at very irregular intervals, and the result of inspection of the ureteral orifices, at any one or several times, may prove entirely negative. I have observed one instance in which an examination of the urine, made previous to operation, showed absolutely no albumin or pus; yet on operation I found and removed a kidney converted into a pus-sac twenty-three centimetres long and about eleven centimetres in diameter. In this particular case, indeed, occurring in the wife of a physician, pyuria had *at no time* been observed or even suspected. Even if we obtain pus from a kidney by ureteral catheterization we are still left completely in the dark as to the location and extent of the disease; whether it be a purulent nephropylitis, for example, or an abscess or abscesses in the substance proper of the kidney.

In renal hæmaturia, likewise, the results of inspection of the ureteral orifices by cystoscopy may be misleading. It may be that only one ureteral orifice can be distinctly recognized. If bloody urine issues from that we cannot be sure that the other kidney is not also bleeding, or even that a second kidney is present. Or the confusing discovery may be made, as happened in one of my cases seen and verified by my friend, Dr. Howard A. Kelly, and

elsewhere reported,¹ that bloody urine comes at one time from one and at another time from the other kidney. In this case the hæmaturia proceeded from the left kidney on one day and from the right kidney on the next. It proved to be a case of malarial nephrorrhagia, was promptly cured by quinine, and has remained cured. And finally, cystoscopy, although it may locate the bleeding in one or the other kidney, can give us no information regarding the nature of the lesion causing the renal hæmaturia.

Our next resource in determining the presence and condition of the kidney consists in collecting the urine from each kidney separately by means of catheterization of the ureters. This, in the male, is a comparatively new and difficult procedure, not certain always to succeed even in the hands of experts. In females the procedure is more readily carried out and more certain of result, owing chiefly to the possibility of direct cystoscopy in women.

Catheterization of the ureters, however, has its shortcomings, drawbacks, and contra-indications, which unfortunately greatly impair the usefulness and efficiency of what would otherwise be a nearly ideal method of obtaining information relative to the condition of each kidney taken by itself. I say *nearly* ideal, because in pyuria of renal origin it indicates neither the extent nor the exact seat, nor the multiplicity or otherwise, of the suppurative process, and in renal hæmaturia it tells us nothing of the lesion causing the hemorrhage. Nay, in renal hæmaturia we may even be unable to decide by catheterization of the ureters as to which kidney is bleeding, since catheterization of the ureters often (one writer states in 50 per cent. of cases) itself causes bleeding from the ureters.

An important contra-indication to catheterization of the ureters obtains in the relatively large class of cases of pyuria, and is based upon the danger of carrying infection from the bladder into a healthy ureter by means of the ureteral catheter. The same danger obtains in cases of unilateral renal or of vesical tuberculosis; a healthy ureter may be inoculated and the tuberculosis may ascend to a healthy kidney. This danger of infecting a healthy ureter and kidney is real, and the responsibility for its risk must not be lightly assumed by any man.

Skiagraphy and the fluoroscope promise, in the near future, to

¹ New York Journal of Gynecology and Obstetrics, July, 1894, p. 36.

enable us to learn much about the condition of the kidneys *intra-vitam*. The presence and position of the kidney can be readily determined by the fluoroscope. In several cases in which I made the diagnosis of movable kidney by palpation, Dr. Samuel Lloyd has been able to verify the diagnosis by viewing the displaced kidneys with the fluoroscope, the patients, divested of part of their clothing, standing erect before him. Stones in the kidney have already been clearly skiagraphed, and it is quite possible that other lesions of the kidney, tumors, for instance, and even abscesses, will soon reveal to us their presence by means of the skiagraph and the fluoroscope. The difficulty, I imagine, will be to interpret correctly what we see with the fluoroscope and what the skiagraph pictures. Time, improvements in skiagraphy and the fluoroscope, and larger clinical experience will no doubt solve many of these difficulties.

In the mean while there remains a final resource for determining the presence and the condition of the other kidney, any allusion to which in surgical literature has thus far escaped the writer, although he has heard of its having been recently resorted to, at least in part, by a prominent New York surgeon. *I refer to incision down upon, delivery, and examination of the fellow of the kidney to be removed previous to completing an otherwise indicated nephrectomy.* On May 23, 1894, when I first practically carried out the idea, I believed the conception original with myself, and I have found no reason up to the present to change this belief. As any claim to priority which I may have is based upon this case, I take the liberty of quoting briefly from its published report¹:

"A portion of the right kidney, four inches in length, was now brought to the bottom of the wound. It so greatly resembled the distended large intestine that for a time we were in doubt about its identity. It was finally identified by rolling it around and stripping off the perirenal fat until the ureter and renal vessels were recognized. The kidney itself, after coaxing it out upon the back, measured twenty-three centimetres in length, and was converted into a thin sac moderately distended with fluid. It was returned into the body to await the result of an exploratory incision upon the left kidney. The left kidney was found enlarged, but otherwise healthy, evidently doing, and able to do, the work of both. It was anchored in the way described by the writer (*American Journal of the Medical Sciences*, March and April, 1893), and the left wound closed. Returning now to the right

¹ Edebohls: Notes on Movable Kidney and Nephrorrhaphy, Part III., *American Journal of Obstetrics*, February, 1895.

kidney, this organ, evidently degenerated beyond the possibility of repair, was removed without spilling a drop of its contents, the renal artery and vein, and the ureter being separately tied with silk. Iodoform-gauze tamponade of wound. On examination after removal the right kidney was found distended into a huge sausage-shaped sac, the walls of which were everywhere as thin as the walls of the renal pelvis. This sac was filled with purulent urine having a decided ammoniacal odor."

Since the above case the writer has applied the method advocated in two additional cases, and has had occasion in one further case to regret his failure to apply it. The two cases in which it was applied were cases of nephrectomy for renal hæmaturia in which the hemorrhage, by its copiousness in one and its long continuance in the other patient, threatened life, and in both of which all known measures to control the bleeding had been tried and had failed. In both of these cases, after exposure, delivery, and examination of the bleeding kidney, and before its removal, the opposite kidney was also exposed by incision, delivered, examined, and found to be healthy and not bleeding. In these cases the exploration of both kidneys, the nephrectomy, and closure of both wounds for primary union (which was obtained in all four wounds) required sixty and seventy minutes respectively.

The instance in which the writer had occasion to regret a nephrectomy performed without such exploration of the other kidney was in a case of surgical kidney. The patient was in a very feeble and precarious condition, and the enlarged right kidney, riddled with innumerable abscesses of all sizes, was hurriedly removed without exploration of the left kidney. On the death of the patient, two days after operation, the left kidney was found to be as badly disorganized by multiple abscesses as was the right. The result would, of course, have been the same as far as the patient's life was concerned; still the nephrectomy was unnecessary, and would not have been performed had I known the condition of the other kidney.

Modern surgery, with improvements in methods, techniques, and appliances, has made exploratory incision, eventration, and examination of the kidney a perfectly safe procedure, and one that can be expeditiously carried out. At a time when more ancient methods prevailed, when it was necessary to change the position of the patient and sterilize a new skin-area before the other kidney could be approached, when it was an arduous task to deliver the

kidney through the incision, when the incision itself was generally a complicated and serious matter, with additional incisions at right and oblique angles to widen the portal of approach, when the wound was usually packed and left to the slow and exhausting process of healing by granulation, the whole procedure was indeed a formidable affair, necessarily consumed a great deal of time, and imperilled the patient's chances of recovery.

With modern methods, presently to be outlined, exposure by incision, delivery, and examination of both kidneys, with nephrectomy on one side and closure of both wounds for primary union, need occupy no longer than sixty to seventy-five minutes, according to the difficulty of the particular case. With larger experience this time-allowance will, in all probability, be considerably reduced.

Previous to October, 1892, the date of the writer's first bilateral nephropexy, operations upon both kidneys *at the same sitting* were extremely rare, the only recorded instance which I have been able to find being a bilateral nephropexy performed by Küster in 1883. Within the past five or six years, on the other hand, bilateral nephropexy at the same sitting has become exceedingly common, the writer personally having performed it no less than twenty-one times.

The following is the author's present method of procedure in contemplated nephrectomy :

1. Place the patient prone upon the table, and cleanse the entire width of the back in the lumbar region so as to be ready to cut down upon both kidneys without the necessity of disinfection or change of position.

2. Place the author's kidney air-cushion transversely across the table, underlying and supporting the patient's abdomen.

3. Incise along the outer border of the erector spinæ muscle, the incision extending in a straight line from lower border of last rib to crest of ilium. Should the space between rib and ilium be unusually narrow, the incision is made a little more oblique, so that its lower end will reach the ilium a little outside of the lateral border of the erector spinæ. In no case should additional incisions at right or oblique angles to the first, with possibly resection of a rib, as still so frequently practised by many surgeons, be made. The *absolute* necessity for such additions to the simple straight incision must be extremely rare. The writer has not encountered it once in nearly 150 lumbar incisions made for nephro-

pexy, nephrotomy, nephrectomy, and exploration of the kidney ; all of his kidney work has been done through the simple straight incision. As the large incision is held to be justified by those who make it on the score of its necessity for examination and delivery of the kidney, I may add to the above statement that in at least 120 of my cases was the kidney completely delivered through the incision.

4. Continue the first incision through the muscles and fascia of the abdominal parietes until the perirenal fat is reached. In cutting through the abdominal wall avoid injuring the large ilio-gluteal nerve. Its division is followed by post-operative pains and dysæsthesia in the upper and outer part of the gluteal region, of which patients complain bitterly, often for months after operation. The intact nerve can generally be hooked either outward or inward during delivery of the kidney. In three cases in which the nerve ran directly across the middle of the incision, and it was impossible to deliver the kidney either above or below the nerve, I have divided the latter, and, after returning the kidney, reunited the divided ends of the nerve by suture. In none of these three cases did the patients complain of the characteristic pain following solution of continuity of the ilio-gluteal nerve.

5. Cut through the perirenal fat until the kidney is reached. Separate the kidney sufficiently from its connective-tissue connections to permit of its delivery.

6. Deliver the kidney through the lumbar incision. In case the kidney be distended with urine or pus, first draw off the fluid by aspiration to diminish bulk. At first I often experienced difficulty in delivering the kidney, until some years ago I hit upon the following method. With it delivery of the kidney, in nearly every instance, becomes a charmingly simple affair. An assistant, standing at the foot of the table, grasps the lower limbs of the patient and draws the patient toward him. In doing so the patient rolls along on the kidney cushion until the latter, instead of compressing the abdomen, comes to lie underneath the anterior surface of the lower half of the thorax. Compression of this portion of the thorax squeezes the kidney out from beneath the ribs, causing it to present fully in the wound. With a little more or less assistance on the part of the operator, sometimes, indeed, without any assistance whatsoever, except the above manœuvre, complete delivery of the kidney is effected.

In the two instances of renal hemorrhage above related I laid both kidneys simultaneously side by side upon the skin of the back for more careful comparative study.

7. Palpation of every part of the kidney, of its pelvis, and of a greater or less length of ureter can now be performed. If indicated, any of the necessary operations upon the kidney, puncture, nephrotomy, exploratory or therapeutic, nephrolithotomy, resection of the kidney, etc., can be carried out. If a conservative operation be performed upon the kidney, exploration of the other kidney is not called for. Nephrectomy is easily performed by tying the renal vessels and ureter separately with forty-day catgut and cutting the kidney away.

8. After completion of examination or of operation, except nephrectomy, the kidney is returned within the abdomen. If a healthy kidney have been found movable prior to operation, nephropexy should be performed. Unless drainage of the interior of the kidney be called for, or the wound surfaces have been soiled by infectious matter, full closure of the lumbar incision for primary union, without drainage, should be the rule. This rule holds good for both incisions, the nephrectomy as well as the exploratory. The writer closes the deep layers of the wound, the abdominal parietes proper, with buried sutures of forty-day catgut, and the skin with the subcuticular suture.

The patient is out of bed by the tenth day, even after nephrectomy. The danger of hernia in this region, with the above form of incision, is practically *nil*. The writer has never seen a hernia in this region in his own practice, and the only case he knows of is one reported by Boldt as following a nephropexy.

For ascertaining the condition of a kidney, as well as obtaining assurance of its presence, lumbar exploratory incision possesses advantages in positiveness and exactitude of resultant information over examination of the urine, palpation of the kidney, cystoscopy, ureteral catheterization, skiagraphy, and the fluoroscope, while its risks and drawbacks, under modern methods, are scarcely greater than those of catheterization of the ureters. This holds especially true in pus and tuberculosis cases, and when catheterization of the ureters has to be repeated, perhaps several times.

The information gleaned from inspection, palpation, puncture, and, if need be, exploratory incision of a kidney lying before you upon the back generally leaves very little to be guessed at. Slight

or beginning inflammatory changes are the most difficult to recognize, while the more advanced stages of nephritis are easily determined by palpation and inspection. Traumatism of the kidney at once declare themselves. Aspiration will demonstrate the character of fluid collections in the pelvis or in the substance of the kidney. The appearance and feel of a surgical kidney are characteristic; if need be, an exploratory puncture will show the presence of pus. Stone in the pelvis or the calyces of the kidney can be readily recognized when the whole kidney can be grasped between the examining fingers; in case of doubt, a probatory puncture or even incision upon the suspected part is justifiable. Tumors of the kidney can be both seen and felt, and tuberculosis is easily recognized by the characteristic changes. A bleeding kidney, in addition to the spots of ecchymosis visible on the surface of the kidney, presents the tell-tale, deep purple color of the renal pelvis. This optical phenomenon, which I have nowhere found described, is due to the presence of blood within the whitish-colored walls of the renal pelvis. It can be made to disappear temporarily by squeezing the blood out of the pelvis back toward the kidney.

SUMMARY. Before extirpating a kidney, a knowledge of the presence and condition of the other kidney becomes of paramount importance.

The aids to obtaining such knowledge are: examination of the urine; palpation of the kidney; cystoscopy; catheterization of the ureters; skiagraphy; the fluoroscope; and, finally, exploratory incision.

The presence of a second kidney is determinable by most of these aids.

None of these aids, however, with the exception of the last mentioned, can, in all cases, give us completely satisfying information regarding the exact condition of the other kidney.

In cases of pyuria and tuberculosis of vesical or unilateral renal origin, catheterization of the ureters involves the risk of infection of a previously healthy ureter and kidney, and should be avoided.

Incision down upon, delivery, and examination of both kidneys (lumbar exploratory incision), as originally proposed and carried out by the writer, should be the rule in every contemplated nephrectomy in which we are not absolutely and beyond peradventure certain of the presence and exact condition of the other kidney.

Modern surgery, with improved methods and technics, has ren-

dered lumbar exploratory incision a safe and expeditious procedure, the most, and generally the only, reliable one for determining the exact condition of the other kidney.

DISCUSSION.

DR. A. T. BRISTOW, of Brooklyn: In an experience in the dissecting-room with upward of one hundred cadavers I have never met with one instance of a single kidney, although I have, of course, met with the horseshoe kidney. In three cases the kidneys were out of their normal position, one kidney being in the normal location, and the other low down in the pelvis. There were two bloodvessels, one from the aorta, and the other from the common iliac, and the veins went into the descending vena cava and into the common iliac vein respectively. If we were to trust to lumbar exploration we would be deceived in a case like the following: A gentleman who was being examined said he could not find the kidney through the Lange incision, and to my surprise, I could not find it either. One large incision had already been made. Even with a similar incision on the other side we failed to discover the kidney. The subject was forty or fifty years of age. On opening the abdomen we found two kidneys, both of them below the brim of the pelvis, with the abnormality of the vessels already described—*i. e.*, each kidney having two renal arteries and two veins, one emptying into the common iliac and the other into the vena cava. In this case certainly the lumbar incision would not have disclosed this condition. I have met with two such cases, and in neither were the kidneys movable. Those of us who have worked much in the dissecting-room have great confidence in the uniformity of nature. If we calculate the average number of lives saved by the double operation, in order to find an abnormality of very great rarity, and compare this with the risk and damage which must come to an irritable kidney, which always occurs when the kidney on the other side is tubercular, it is difficult to believe that the proposed operation is a wise one. I am surprised that the Lange incision is advocated as giving the most room.

With regard to the evacuation of pus from these kidneys, I would say that it not infrequently happens that the kidney has degenerated into a bag of pus, but it also happens that there may be a very large kidney with separate loculi, which it is impossible to evacuate completely.

DR. WILLY MEYER, of New York: I think that Dr. Edebohls' paper is of immense importance. Every surgeon would feel very

uneasy if he had occasion to remove one kidney and did not know, as far as could be known, the condition of the opposite kidney. We must, therefore, exhaust all the means at our disposal for making this diagnosis. All the newer methods should be employed, and certainly catheterization of the ureters has brought us a little further than has cystoscopy. If we employ both of these methods sufficiently often they will give us much help.

Tuberculosis of the urinary system is much more common than the general practitioner may believe. It is most frequent in the descending form. By observing the mouths of the ureters, as I emphasized in a paper read before this Society two years ago, we may gain valuable information. If we see the mouth of one ureter ulcerated, it points to tuberculosis of that kidney; if the other mouth be healthy it is most probable that the kidney on the other side is healthy, and that it is safe to remove one kidney. I do not believe we should be so much alarmed about the danger of infection of the other kidney by such an examination; the reality of this danger has yet to be proved. In certain instances all these means will fail us. We have, then, to perform suprapubic cystotomy first, and this can be easily done with the patient in a pronounced Trendelenburg position. We can then carefully observe the condition of the bladder, and see whether or not the mouth of one ureter is ulcerated. After carefully washing we can insert the catheter for twenty-four hours, and see in this way whether that kidney is healthy; and then we can remove the bad kidney. We should not be too hasty in drawing conclusions as to the dangers of catheterization of the ureters in both the male and the female.

DR. EDEBOHL: I would only express my indebtedness to the first speaker regarding the rarity of single kidney in the dissecting-room. To my own knowledge there are three cases on record in which a single kidney has been removed by operation and the patient has died. A careful post-mortem has shown no other kidney. The displacement of the kidney downward in the pelvis is not so confusing now as it was some years ago. In the case I referred to the patient, I am sure, had only one kidney, first of all, because the whole pelvic cavity had been carefully explored by expert hands, and a mass the size of a kidney, or even half that size, could not have been missed. When I found a distended gall-bladder and could not find the kidney above, I enlarged the incision in the peritoneum to correspond nearly to the extent of the external incision, and introduced the major portion of my hand into the abdomen, and palpated all of the organs very carefully. It was practically as thorough as a post-mortem examination. I feel positive that there was no kidney on the right side in that patient. I would only add that with the shortcomings of even the perfected methods

—cystoscopy and ureteral catheterization—it is still often the earnest wish of the surgeon to know the exact condition of the other kidney before one known to be diseased is removed. He wishes to decide whether he is to remove the diseased kidney or simply incise it. This decision will depend almost entirely upon his knowledge of the condition of the other kidney. If the other kidney is small and unsatisfactory in appearance, on examination, the prudent surgeon will only incise and drain the kidney which is known to be diseased.

XX. THE RAILWAY SURGEON AND HIS WORK.

BY C. B. HERRICK, M.D.,

TROY.

It is my desire to show in a short paper some of the reasons why railway surgery has become prominent as one of the special branches of the general art, and to relate the doings of surgeons employed in such work.

All the nowadays specialties were born from the demands made upon the profession for more thorough insight into certain cases, which were rapidly multiplying themselves, and for the consideration and treatment of special lines of the same which were found to be necessary. Those employed in treating any large number of cases of disease or injury resulting from causes consequentially the same, would naturally be led to a more proper conception of the demands of such cases in the direction of consideration and treatment. In looking to the railway we find that upward of one million men are employed in a special work, and that this is of a character, the performance of which is fraught with much danger to both life and limb. We find that of this number forty thousand are annually injured, which means over one hundred daily, and this pertains entirely to the working force of the railway, not including the passenger service. We find further that of this army the wounds and injuries received are to a great measure along the same lines, differing only in the matter of extent and severity; that, the cause of production being in every case the same, the injuries necessarily follow along similar lines. The larger majority of these come directly to the surgeon for treatment, so where many

are attended by comparatively few, it is a fact, if any special features existed in this class of injuries, or that any particular line of treatment was found to be followed by better results than from those ordinarily practised, such would become factors, and the adoption and carrying out of such lines would be generally made by those to whom the cases are referred. If we look for a moment at the nature of the bodies which produce these injuries, we will note the fact that they are, in every case, made up of prodigious weights, and that in addition to the matter of weight there is the force of velocity. The lightest flat-car weighs upward of ten tons, the Mogul locomotive weighs one hundred and fifty tons, while between these come the coach and Wagner cars, as well as loaded freight cars. These weights are augmented by a force of velocity when accidents occur, inasmuch as injuries are not inflicted upon the railway employes while cars are at a stand-still; so that we must consider the minimum force active in production of injuries as being very great. In fact, we cannot comprehend the magnitude of the crushing force that ensues from an express train thundering along the steel rails at a speed of forty to fifty miles an hour, hurling its weight of thousands of tons upon and over a human body. It is more the marvel that any one so injured ever escapes with life, but many do, and the picture that such present, when mangled, twisted extremities, mixed up with bloody rubbish of the roadway and their clothing, is anything but encouraging, requiring no little nerve to attempt to preserve vitality and function in so lifeless an appearing carcass. With the coexisting complications of such cases, any one of which is frequently of a character threatening to be fatal, these injuries cannot be compared in the slightest with those ordinarily seen in street or factory accidents.

A study of the relations between cause and effect has resulted in a much more decisive manner of treating these crushes. This class of injuries, so far as crushes to the extremities are concerned, are found to divide themselves into two distinct types relative to the speed of the train which produced the same. Experience has taught us that a slow-moving train crushes an extremity as if it were in a vise, the damage to the parts being limited to the margins of the wound received, leaving the proximal portions vital and reparative close to the injury. On the other hand, a train going at high speed produces an injury, the appearances of which

are very frequently misleading ; that the tissues for a distance beyond the apparent injury are damaged to such an extent as to render them incapable of continuing their vitality, and cannot be depended upon for repair. Upon this, then, must we mark our lines for treating the case, inasmuch as the retention of devitalized structures in the end of an extremity would not only be followed by a more serious condition of the same, locally, due to infection from this devitalized tissue, but soon make itself felt in general devitalization of the individual. The proper conception of this condition means much toward the future aspect of the case. Again, we note that injuries are also misleading through the fact that the elasticity of the skin renders it possible for an extremity to be run over by a train of cars without leaving behind any external mark, the contour remaining normal, yet all the tissues underneath the skin being crushed and completely devitalized. This condition must be decided at once and such features recognized, for if deception is permitted to come into the case, and a removal of a part whose life is already extinct not promptly done, rapid absorption of the devitalized tissues will soon reduce the case to a fatal termination.

In minor injuries, also, there has been much done in the practice of this special line of work which has given better results. In the less appalling injuries and crushes we have learned that we may be conservative, and we may be ultra-conservative.

In practising conservatism we almost entirely confine ourselves to the upper extremities, more particularly the hand, which is frequently the site of injury by being crushed between bumpers, many times presenting an appearance anything but encouraging, and which many would not hesitate to sacrifice at once. Experience has shown us that conservatism can be practised here to the highest degree ; that the hand is very recuperative, and that where injuries have been caused by bumpers or slow trains, we may use tissues that are mangled and shredded, if necessary, to make up what has been lost, and the results may be gratifying beyond conception in the preservation of many hands that become useful thereafter to the individual.

On the other hand, in the lower extremity we have been taught by experience that conservatism may be carried to a degree beyond good judgment ; that in crushing injuries to the foot there is but little to be gained by conservatism. A long process of treatment in the efforts to preserve the part simply does this and no more,

the function of the foot too frequently lost entirely after the long battle to preserve the same. The men so injured are, as a rule, those of a laboring class, or those having families depending upon them, and the keeping from employment for months, and in some cases years, in the hope of regaining function in a foot or ankle, is beyond good judgment. We believe it far better, and experience has taught us the same, to do a radical operation at the first instance in cases where a crush proves to us the fact that function of the foot or ankle will not be recovered. The operations of the ankle, such as Chopart, Syme, and Pirogoff, have all been relegated to the past, as the results from such amputations, in the matter of the perfect use of the lower extremity, do not warrant their performance. We have also recognized that an amputation in a joint is undesirable, from the fact that by leaving any part of the natural joint we preclude the possibility of applying an artificial articulation, with its benefits.

These are some of the most important lessons which experience has taught us in the matter of the treatment of crushes to the extremities.

Other features which come especially conspicuous before the railway surgeons are those of sepsis, the surroundings of the person when injured, and shock. When sepsis is found on the skin and clothing of all men engaged in labor, yet upon the railway are men whose skin, covered by oil, blackened by cinders and the handling of iron and rough bodies, is in a peculiar septic condition, and when receiving injuries, the force which produces such continues and grinds the sepsis directly into the fresh wound, so that we have this matter before us in an exceptionally potent condition. The feature of the surroundings is one of importance, inasmuch as upon it, many times, the question of the survival of the individual rests.

In most street surgery the injured person is within a moment's call of efficient aid and comfortable and warm surroundings. Upon the railway the majority of injuries occur out on the road, perhaps miles away from any prompt, efficient aid, more frequently in inclement than in good weather, so that these conditions impose themselves at once upon the already exhausting condition of the shock and injury, tending to prolong the same and to very materially reduce the chances for recovery. Shock is a feature that is very liable to be greatly exaggerated, from the fact that we have

the psychic element so prominent, as well as from the fact that the injury has been so very severe, with consequent hemorrhage and complicating conditions.

Now, what is the railway surgeon doing to ameliorate these conditions? In the West, where a large number of men are employed upon the railways, and hospital towns infrequently situated, the railway surgeon was the first to see the necessity of advising and superintending the construction of hospitals for the reception and treatment of cases of injuries upon the road. Being endowed with authority from the corporations, he organized a surgical service, placed the hospital under the skilful attentions of picked assistants, and thus at once placed such means at the disposal of the injured employé as best to insure proper attention to his condition. These railway hospitals have gradually extended over the land, until there are many of them owned and operated exclusively by the railway corporations, under the able supervision of selected surgeons, and upon our far Eastern roads the system of contracting with already established hospitals in cities is adopted in lieu of the personal ownership by the corporation, the entrance into the same being free to the employé, and the attention given to the injured person assigned to the railway surgeon.

Recognizing the fact that the primary attention to wounds is all-important, the railway surgeon has placed upon the roads emergency packets, each containing splints, bandages, gauzes, and anodynes, placed in charge of the conductor on each and every passenger and freight train. If a doctor happens on a train when an injury occurs the packet is placed at his disposal, otherwise the primary attentions by the use of these aseptic dressings being given into the hands of the conductor and trainmen, who are instructed in their use by the surgeon holding schools of instruction at stated times, teaching them the causes of sepsis and necessities of thorough attention in the first instance to wounds. The trainmen are also instructed in the matter of transportation of the injured, so that under the present rules a severely injured person is not hustled into a car and transported miles to a hospital, but is placed in the nearest comfortable shelter, covered with blankets, and stimulated to the proper degree; the surgeon is sent for, who comes to the patient rather than have the patient go to the surgeon. Experience has proven that these measures have saved many lives. On several roads an ambulance car has been added to the rolling-stock,

which, placed at an important station, constructed so as to give operating- and transportation-rooms, fully equipped, and with all necessities for immediate operation or for the proper transportation for the injured, is at all times ready to go out at a moment's notice along the road to the assistance of severely injured persons.

Aside from active service, the railway surgeon is considering many matters which he is constantly endeavoring to improve for the benefit of the profession, as well as the public at large.

The question of sanitation of cars is an important one, and means are being devised for doing this in the most satisfactory and efficient manner, well knowing the fact that the germs of disease lodging in the textures of the ordinary travelling coach, or the very certain fact of their doing so in the draperies and furnishings of the luxurious sleeping-cars, prove to us the necessity of combating the baneful influences of these germs, and their being transmitted to the subsequent occupants of the same coaches. The examination of employes as to fitness for work is also one of their duties.

A very important matter which the railroad surgeons of this country are gradually settling down to a firm foundation is the question of "traumatic neurasthenia," as well as the injuries in general to the spine, which have in the past been so ambiguous, and over which so much controversy has resulted.

In conclusion, it is noted that upward of six thousand railway surgeons are at present employed in this particular line of work, and that it demands individual consideration is no longer any question. Like all the specialties, it takes its principles from general surgery, and only in the features found in the causes of, immediate conditions of, and the treatment of the wounds received is there any deviation made from the orthodox treatment of such lesions as generally received.

The National Association of Railway Surgeons, the American Academy of Railway Surgeons, the State Associations in many parts of the Union, our own State association of one hundred members, and many local associations confined to single lines or systems, prove that the men working in this special field are progressive, and the results of the discussions of these meetings form the annals of railway surgery.

DISCUSSION.

DR. J. P. CREVELING, of Auburn: I have unfortunately had to do considerable railway surgery, and I have never been able to see any difference between the injury received from a train of cars and that produced by other machines. There is always much shock, but the degree of shock depends very largely upon the nervous organization of the individual, aside, of course, from the question of hemorrhage. If the train is moving very rapidly there is an additional element which is not observed in ordinary machinery accidents. I have never seen that these railway cases are any more liable to sepsis than injuries produced by other machinery. Most workmen have dirt and oil on their clothes, whether employed on a railway or in a machine shop.

Neurasthenia is the nightmare of every railway; it is getting to be the nightmare of every railway surgeon. I believe that a great many of these cases of so-called neurasthenia are merely bids for money from the railroad. I have seen a great many cases of this so-called neurasthenia, but I do not recognize anything by that name, and I do not believe there is any such thing. It is an indefinite term, used very much as malaria is—it covers a good many somewhat obscure conditions.

DR. HERRICK: That velocity is an element of distinction is just what I said in my paper; it is one of the special and characteristic features of railway injuries.

XXI. EXCISION OF THE FIBULA FOR OSTEOSARCOMA.

By SAMUEL LLOYD, M.D.,

NEW YORK.

ON June 23, 1895, a young woman, aged twenty-two years, was brought to me by Dr. A. R. Thompson, of Troy, N. Y.

She gave the history of a fall eight years before, which injured her ankle, but did not confine her to bed. In three days she was able to walk. For the next six or seven years she complained of more or less pain in the region of the injury. Four years before coming under observation she had typhoid fever, and on recovery noticed that the joint had become swollen and much more painful. Pain from this time became constant, and was increased on walking. The swelling about the joint gradually increased, and in 1894 it was opened. She was told, at that time, that pus was evacuated, but that there was no involvement of the joint itself. The wound

healed promptly, but the swelling continued and gradually increased in size. She made the statement that sometimes the swelling was larger than at other times.

Examination revealed a tumor of considerable size, involving the lower end of the fibula and the malleolus. It fluctuated at points, but the greater part was very firm and distinctly bony. At the lower margin, and also across the upper border, egg-shell crackling was readily made out. The diagnosis of osteosarcoma of the fibula was made, and the question of treatment was thoroughly discussed with the patient. Amputation of the thigh just above the knee was advised, but absolutely declined. After careful consideration of the condition it occurred to me that the same conditions would be met in a case of this character by the excision throughout its whole extent of the involved bone, and this was advised and accepted by the patient.

I was unable to find any precedent for this operation. Of course, I do not mean to say that excision of the fibula has not been practised before, for it has been done for tubercular and other diseased conditions a vast number of times; but I could find no record of it having been done for malignant disease.

The operation was performed on June 27, 1895, at the New York Post-Graduate Medical School and Hospital. An incision was made from the head of the fibula down to the malleolus, along the outer margin of the bone. The soft parts were dissected free, care being taken to avoid the vessels and nerves. The bone was then cut through about its middle, and the upper part quickly disarticulated. The head of the fibula did not communicate with the knee-joint, as is the case, I believe, in about 10 per cent. of the cases.

The lower end was grasped at its cut surface and dissected away from the interosseous membrane and deep tissues down to the level of the tumor, which was found to spread out from the bone and involve these structures, as well as the adjacent periosteum and surface of the tibia. All of this was cut away, and it was then found to involve a portion of the ankle-joint; consequently the joint was opened and all the diseased portions removed. It was impossible, in consequence of the amount of tissue removed, to thoroughly approximate the whole of the lower portion of the wound, and it was therefore packed. The whole wound did not heal accurately. At this time I was using catgut that I purchased already sterilized, and this case and another one operated upon on the same day supplicated.

She progressed favorably from this time until July 24th, when, at the request of her physician, she was given an injection of three minims of the toxins of erysipelas and prodigiousus; no reaction followed. Two days later five minims were given, also without result, and on July 29th she received a third dose of eight minims; this time the temperature rose to 101° F., pulse 112, two hours after the injection. At the end of two-and-a-half hours the temperature was 100.2° F., pulse 94; three hours, temperature 101.2° F., pulse 96; six hours, temperature 102.2° F., pulse 96. There was no chill and no local induration or redness.

July 31st. Fourth injection, 12 minims; no reaction.

August 2d. Fifth injection, 20 minims; no febrile reaction, but pain in leg lasting nearly all night, and accompanied with some redness.

6th. Sixth injection, 25 minims. This was followed by nausea, and one hour after the temperature was 102° F., pulse 104; one-and-a-half hours, temperature 102.8° F., pulse 104; two hours, temperature 103.2° F., pulse 104; two-and-a-half hours, temperature 103.2° F., pulse 94. There were also pain and redness in the foot and leg.

8th. Seventh injection, 30 minims. Within the next three-quarters of an hour she had a chill lasting fifteen minutes, accompanied with marked cyanosis. Vomited several times. Temperature, one hour after injection, 104° F., pulse, 128; temperature, one and a half hours after injection, 104° F., pulse 120.

10th. Eighth injection, 30 minims; no reaction. She never reacted to the injections again, although several doses were given.

On August 16th the patient was discharged from the hospital, with a small sinus in the upper part of the incision, another in the middle having two openings, and a smaller one at the ankle-joint. On the inner side of the ankle there was still a small abscess-cavity leading backward and upward, which had resulted from the suppuration. Under Dr. Thompson's treatment these sinuses rapidly healed and the patient was shown at the meeting of the Medical Society of the State of New York at Albany, January 26, 1898, two years and seven months after the operation. There has been absolutely no sign of recurrence. The leg is perfectly useful, although the patient has a stiff ankle. She walks with very little limp, and says the leg is very comfortable.

Dr. H. T. Brooks, pathologist to the New York Post-Graduate Medical School and Hospital, examined the specimen and found it to be a round-cell sarcoma.

So far as I have been able to ascertain, this is the first time the fibula has been excised for sarcoma. It has been done frequently for benign diseases, but malignancy has always led to amputation. Two other cases have been done since, one by Bland Sutton, reported in the *British Medical Journal*, May 2, 1896, p. 1086. His case was a woman, aged twenty-three years, who had a round-cell sarcoma. The other was only a partial excision, the disease involving the head of the bone. This case was reported by Newman in the *Glasgow Medical Journal*, 1896, vol. xlvi., p. 137. This was also a female, aged seventeen years, with a myeloid and spindle-cell sarcoma of the upper end of the fibula and four inches of the shaft. A portion of the tibia was also gouged out.

In doing this operation every precaution should be taken to avoid injuring the musculo-cutaneous, anterior tibial, and posterior tibial vessels and nerves, and if the ankle-joint is involved care

should be taken in the after-dressing to keep the foot at such an angle that it may be ankylosed, if that condition should follow, in a useful position.

XXII. REPORT OF A CASE OF OSTEOTOMY OF BOTH TIBIÆ AND FIBULÆ FOR SYMMETRICAL ANTERO-POSTERIOR ANGULAR DEFORMITY.

BY F. H. PECK, M.D.,

UTICA.

FRANK W., male, mulatto, aged seven years, an inmate of the Utica Orphan Asylum, was admitted to my service at St. Luke's Hospital, Utica, N. Y., August 16, 1897, for operation for marked antero-posterior curvature of both legs.

He shows the characteristic perverted development of rhachitis; the disparity between his pinched facial features and his cranium makes the latter appear abnormally broad; he has no incisor teeth of either jaw; the epiphyses of the long bones are enlarged; and, finally, the deformity of the legs, for the correction of which he is admitted to the hospital, consists of a sharp angular curvature of both bones of each leg to an angle of about 45° in the antero-posterior plane, at the junction of the middle and lower thirds. The photographs which I submit show the deformity correctly in the right leg, which was in sharp profile to the camera; the left foot, however, was everted so as to present a front view of the leg, rendering the deformity less apparent. The deformity was symmetrical, and about equal in the two extremities. Figs. 1, 2, and 3 show the subject before the operation; 4 and 5, after correction of the curvature.

The boy was prepared for operation August 22d. Prior to the operation the functions of the ankle-joints were tested, and as the degree of flexion seemed to be ample, it was unwisely decided not to tenotomize either tendo Achillis. This error in judgment was, I think, responsible for the accident which forms the only point of special interest in the case, and which has led me to think that the presentation of its history might be acceptable.

Under complete asepsis an operation was made to do a cuneiform osteotomy of the tibia and fibula of each leg. A linear incision over the most prominent portion of each bone was carried down to and through the periosteum in the long axis of the leg, the periosteum detached and widely retracted, and a wedge with a base of about three-fourths of an inch resected with chisel and mallet. The bones were greatly hypertrophied in cross section and eburnated to an ivory-like hardness, rendering the operation very tedious. One mallet was completely destroyed, and another battered pretty well out of shape before the resection was completed. Each bone was cut about three-fourths through before it was possible, with the expenditure of extreme manual force, to fracture the undivided portion;

and when they broke, it was with a loud snap, and formed a complete instead of a green-stick fracture, which was desired; the edges of the periosteum were sutured with fine catgut; the soft parts closed with silkworm; the legs straightened and enclosed in plaster-of-Paris casts.

Post-operative temperature was slight, and all went apparently well until September 5th, two weeks after operation, when the development of an evening temperature to nearly 101° F. led to the suspicion of pus. Fenestra were cut in the casts, showing primary union of all the incisions except that over the right tibia, where the distal fragment of bone had caused pressure erosion of the soft tissues and was protruding through the wound and bathed in a small quantity of pus. The cast was removed, and it was found that the fibula had united sufficiently to hold the leg in a position which corrected the deformity, but the ends of the tibia were not even in apposition, and its distal fragment was movable forward, but could not be pressed into normal position, nor so reduced that the exposed end of bone could be covered by the soft tissues. Hesitating to destroy the reparative processes going on in the fibula, I devised the crude apparatus for reposition of the tibia which I herewith present. It is in the nature of a jack-screw to force the projecting fragment of tibia into place and maintain it in position until union was complete. It was made under my direction by a blacksmith in a neighboring shop. It consists of an interrupted splint, composed of heavy strap-iron, and extending from the knee down the external aspect of the leg, under the instep, and up the inner aspect of the leg to the knee. The portions of the iron strap opposite the field of operation are bowed outward to give free access to the wound; the parts which fit the contour of the upper leg, foot, and ankle, and to about two inches above the malleoli being imbedded in plaster casts. A strap of iron, with either end turned up to hook under the interrupted parts of the splint, arches over the ulcer, and just above the projecting fragment of the tibia is perforated for the admission of a long screw (taken from an old *écraseur*), to force and maintain the bone in proper reposition. This apparatus was applied to the leg, and as soon as the encasing plaster had hardened a small hole was countersunk in the crest of the protruding portion of the tibia to receive the conical point of the screw; the screw was applied and turned down a sufficient number of turns to force the bone into its proper axis; the ulcer about the point of the screw was packed with strips of iodoform-gauze and irrigated with bichloride solution every third day. The apparatus was allowed to remain five weeks, when the ulcer was cicatrized completely save for the small opening admitting the end of the screw. All apparatus was removed about November 1st, the bones being well united without deformity, and the child allowed to walk about the ward.

November 17th I curetted a small, carious ulcer where the screw impinged upon the tibia, and did tenotomy of the right tendo-Achillis, as the patient's gait showed insufficient degree of flexion at the ankle; the leg was for three weeks encased in a plaster cast, fenestrated to allow dressing of the ulcer.

When the cast was removed the ulcer was cicatrized, and the child was allowed to walk and play about the hospital.

He was discharged December 12th, without deformity and with but slight limp of the right leg, which has subsequently disappeared.

I believe that the distortion of the tibia after operation was due to a failure to divide the tendo Achillis, which, by the powerful contraction of the muscles of the calf, acted as a bowstring, and tilted the lower fragment upward and forward. That tenotomy is not essential in all cases is, however, proved by the conduct of the left leg, in which healing and bony union proceeded rapidly and uninterruptedly, although the tendo Achillis was not divided at the operation nor subsequently.

It may be contended that it is inexpedient or even unjustifiable to submit a child to what appears to be so serious an operation for the simple correction of deformity. In answer to such argument I would say that while the literature of this subject is scanty, few authors entering into the details of the operation, all who mention the subject at all concur in recommending operative procedure; and it seems to me that any operation which converts crippled into sound members, and corrects a hideous deformity without special danger to life, is not only justifiable, but eminently advisable.

XXIII. THE TREATMENT OF FRACTURE OF THE FEMUR IN INFANTS AND CHILDREN.

By THEODORE DUNHAM, M.D.,
NEW YORK.

I VENTURE to invite your attention for a very few moments to an apparatus for the treatment of fracture of the femur in infants and children which I devised nearly five years ago. I have used it in eight cases, and found it so excellent, so readily applied, and requiring such simple materials that I think it better than any other form of treatment for this fracture, and worthy to be brought to your attention.

An apparatus for the treatment of fracture of the femur in infants and young children should be of such a nature as to give the least possible discomfort and interfere as little as possible with the normal routine of the little patient's life. The more fully these conditions are met, the more serenely will the patient glide

through the period required for the knitting of the bone, and the better will be his general health when the bone is firm. These are general conditions which the apparatus should meet if possible. Special conditions which it imperatively must fulfil are these: to hold the fragments in accurate position as regards the three kinds of possible displacement, namely, overriding, angular deformity, and rotary deformity; and that the thigh should be susceptible of examination from time to time, and any tendency to deformity be capable of correction.

I will first describe the apparatus, and then show how it meets these various indications.

The materials required are flannel bandages, plaster bandages, two pieces of suitably-bent flat iron, such as may be obtained from any blacksmith, and some stout twine, or, preferably, marline.

The skin is cleansed and dusted with bismuth powder. The thigh is semi-flexed, and a flannel spica is put about the upper part of the thigh and pelvis. Over this is placed a spica of flannel bandages. A similar splint is applied to the leg from the roots of the toes to the spine of the tibia. The irons should have been so bent that one may be attached to the plaster spica over the groin and run along the front of the thigh, while the other may be attached to the front of the plaster on the leg and run up in front of the knee and overlap the first iron along the front of the thigh. These irons are readily attached to the plaster splints, and absolute rigidity secured by proceeding as follows: Mix plaster of Paris with water to the consistence of a thick paste; apply it to the plaster splint where the iron is to be attached; sink the iron in it, and at once bind it on by more turns of plaster bandage. The plaster paste adapts itself to the contours of the iron, and, when it has set, holds it with the rigidity of masonry.

While attaching the irons the limb should be so held that the thigh is straight and without rotary deformity, and the knee and hip semi-flexed. The irons should be so applied that they overlap accurately along the front of the thigh. This is easily managed, for the plaster paste allows of considerable freedom in placing them.

When the plaster has firmly set let one assistant grasp the plaster on the leg and make extension in such a way that the lower iron shall continue to snugly overlap the upper, while another assistant makes counter-extension by pressing the pelvis

splint firmly upon the table. This traction will reduce any shortening from overriding of the fragments and, meanwhile, the irons will glide one upon the other. While this tension is maintained the two irons are rigidly lashed together. This may best be done by making a sailor's seizing.

Take a piece of stout twine or, preferably, marline; make a loop near one end and lay the loop along the overlapping irons. Take the long end of the twine and make a snug spiral round the irons nearly the whole distance through which they overlap, pulling every turn tight, and pass the end through the loop, which will project from one end of the spiral. The short end of the twine will project from the other end of the spiral. Grasp the short end firmly by winding it round a stick and pull. This will pull it along under the spiral and make the loop close down upon the long end till it grasps it firmly. Then cut off both ends.

The irons will now be bound together neatly and with perfect rigidity. Through the splints they will hold the femur in extension. The splint is now complete in the case of infants. For older children I recommend, in addition, the use of coaptation splints.

I will sum up the advantages of this apparatus under two heads: first, its efficacy in controlling the fractured bone; and, secondly, the well-being of the patient while under the treatment.

Extension is maintained because the apparatus grasps the pelvis above, and, through the hip-joint, the upper fragment; and grasps the leg below, and, through the knee-joint, the lower fragment. The pressure of the splints above and below is exerted over such large areas and with such perfect adaptation to their contours that there is no danger of pressure-sores. The position of the limb is such as to relax the thigh muscles to the utmost, so that traction exerts its maximum effect on the bone.

It is evident that rotary displacement cannot occur.

As regards angular deformity in an older child I use, in addition, coaptation splints. They are useless and unnecessary in an infant.

After a week the lashing should be removed and the irons again lashed while extension is made—to take up slack from wasting and adaptation of the soft parts to the splint.

The thigh is always open to inspection. Should the position be thought not entirely satisfactory, a sliver of wood suitably

placed between the irons will alter their relative positions as desired.

As to the general welfare of the patient while under treatment: The position of the limb is the natural one of relaxation, and, therefore, that of greatest comfort. Diapers can readily be changed and the infant kept clean. The baby can sit naturally in its mother's arm, and be put to the breast or carried in the open air. Its normal routine of life is scarcely interfered with.

I would add that where there is tilting upward of the upper fragment it is only necessary to give the irons a sharper bend. This will elevate the lower fragment in such a way as to be more naturally in line with the upper fragment.

XXIV. PRACTICAL EXPOSITION OF THE X-RAYS IN MEDICINE AND SURGERY.

1. TECHNIQUE AND APPARATUS.

By SAMUEL LLOYD, M.D.,
NEW YORK.

PROBABLY few surgeons who have used an x-ray apparatus would give it up and return to the old and uncertain methods of diagnosing a fracture by feeling for a solution of continuity. It is a great comfort to know that the bones are in perfect apposition, and to be able to watch them from day to day through the plaster-of-Paris or other dressing, and be confident that they have been retained in accurate apposition.

There are three general methods of developing the ray: 1. The Tesla tube, which I have not used, and which has been generally abandoned, at least for surgical work. This gives a very strong "ray," but is much more apt to "spark" the Crookes tube, and does not give as good results as either of the other two methods.

2. The static machine. This is a very satisfactory way of developing the x-ray. Its advantages are that, if one needs electricity for therapeutic purposes, the static machine can be used in that way, and if one already has a static machine he can very readily fit it for x-ray work.

There are, however, certain disadvantages in the use of the static

machine, and they are dependent upon the usual uncertainty of the static current, especially in humid atmospheres. The static machine may be running beautifully for ten minutes while fluoroscoping an object, and give out completely just as a photographic plate is exposed, thus spoiling the plate and causing disappointment to both the surgeon and the patient.

The picture from the static current is, however, very clear and satisfactory. To do good work we should use a large machine; the plates should be from 30 to 36 inches in diameter and six or eight in number.

All that is necessary to adapt the static machine for x-ray work is a pair of properly-insulated, flexible wires to connect the poles of the machine with the tube, a proper set of tubes, and a tube holder. This can be applied to any machine, and does not require any special knowledge of electro-mechanics to manage it. It is better to have the machine run by a motor than to depend upon hand-power, as the speed and the steadiness of the revolutions of the plates are important for perfectly satisfactory work.

3. The induction coil: This is by far the most satisfactory method of developing the electricity needed for x-ray work, especially where a continued current and long exposure are essential, as where several patients are to be examined, or in working in the thorax, abdomen, pelvis, or the thighs or knees of stout people.

The chief objection to this method is that it is noisy. Various attempts have been made to overcome this objection, but so far they have not been perfectly successful. If a vibrator is used on the coil it frequently binds and interrupts the induced current at the critical moment. It is true that it takes very little trouble to release the vibrator, but the frequency of the accident prevents the general adoption of this method of interruption. The current must be interrupted rapidly and completely, for it is only during the "break" that the secondary or induced current is set up, and the induced current is the one we employ in producing the light in the tube. An attempt has been made to use the vibrator on a separate table, in the same way the break-wheel is used, but, on the whole, the current is not as steady as a break-wheel driven by a good motor. The break-wheel should be driven with great rapidity, and should have a number of breaks or interruptions. The one I am using is made of brass and has an equal number of breaks and makes. This is driven by an electric motor revolv-

ing at the rate of at least 1000 to 1200 revolutions to the minute. This motor also runs an ordinary blower, which is used to project a current of air directly on the spark, so as to make the break as complete and as instantaneous as possible.

It is essential to have only a first-class induction-coil. It is no economy to buy a cheap or old coil. This coil should be capable of giving at least a good six-inch spark. For hospital work an eight-inch or even, if a good deal of work is required, a twelve-inch coil is better.

Of course, one disadvantage of this apparatus is that it requires for perfectly satisfactory work the Edison constant current. If the alternating current is employed a transformer must be used, and this is always troublesome, is likely to get out of order, and, if set up near the instrument, produces so much light that it interferes materially with the use of the screen. A coil can be employed and very satisfactory work done either by means of a primary or storage battery. In either case, whether we use the battery or the street-current, a good rheostat is essential. The more stops we have in the rheostat the better. If a battery outfit is employed the vibrator may be used very satisfactorily in place of the break-wheel, blower, and motor. The coil should also have, in either case, a good condenser, and this is usually placed in the base of the coil. A switch is always placed in the coil, which enables us to change its poles instantly, so that if the tube is set in circuit wrongly the poles of the coil can instantly be reversed, saving the necessity of shutting off the current or changing the tube around.

If a primary battery is employed the bichromate battery will probably prove the most satisfactory, but this can only be used for work not involving a long time. When it is necessary to use a battery outfit, and yet the amount of work is so great that it is essential to use the current for considerable time, a battery might be set up in double series, so that while one set of cells was resting another set could be turned in to supply the current. If a bichromate battery is used the zincs must be removed from the fluid as soon as the current is turned off, so some arrangement should be made to lift them all out mechanically.

The fluoroscope is made of tungstate of calcium or platino-barium-cyanide crystals dusted on a properly prepared surface. A good piece of cardboard or leather well stretched is carefully var-

nished, and then, while the varnish is still wet, the crystals are dusted over the surface through a very fine sieve. The platino-barium-cyanide fluoroscopes are the best. The box is nothing more than a truncated cone made of cardboard or wood covered with black linen, with the fluoroscopic screen forming the base and the apex surrounded with fur or some other material that will fit up closely against the face when the eyes are applied at the opening, so as to exclude the outside light and make the interior of the box practically a dark chamber. If a fluoroscopic screen is used without the box a dark room is essential. These screens and fluoroscopes are made of all sizes, and for thoroughly efficient work it is best to have two or three of different sizes. If only one can be obtained I should suggest one about five inches by seven as the most convenient for general work.

The tubes are made in many styles and shapes. On general principles, they are all composed of a cathode end, made of a concave piece of aluminum, and an anode made of a platinum plate set at an acute angle. They are exhausted to about one-millionth of an atmosphere by means of a Sprengel's or other mercury pump, and, as this involves more or less knowledge of glass-blowing, it can only be done by those who are expert. This is the chief expense after the plant is once set up, as the tubes have a tendency to get "high" as they are used. That is, the air already in the tube is gradually used up until the vacuum gets so much higher than it was before that the coil or static machine is no longer capable of exciting the ray. It must then be re-exhausted. The x-ray penetrates aluminum, but cannot penetrate platinum, so as the current starts from the aluminum end of the tube it strikes against the platinum, and then is thrown against the glass and out of the tube.

As yet we have only theory to explain the origin of the ray, and this is not the place nor have I the time to enter into a discussion of these mooted points.

These tubes with the platinum disk are called focus tubes, and it is essential for the experimenter to determine the exact focal point of each of his tubes before he can expect to do good work with them. When a tube comes from the factory it is either "low"—that is, has a rather considerable amount of air in it, so that the electrical spark will pass across it easily—"medium," or "high." In the former tubes great care must be taken not to

use a spark of too great intensity at first. The picture given by a very low tube will be only an outline of the part, showing no detail of the bones; as it works higher the power of penetration is increased until through the fluoroscope we can make out the bones distinctly. This part of the work, known as "working up a tube," requires patience and considerable skill, for if the spark gap on the coil is increased too rapidly the tube soon becomes high, and has passed the useful stage before any good work has been obtained from it. I am often asked about the life of a tube. So far I have never been able to adduce any general rule. Every tube seems to behave differently. I have had tubes that would run half a day, and others that would work constantly every day for several weeks without appreciable change. On the other hand, I have had tubes that would not last half an hour, and that have been practically worthless with a single short exposure. Behind the platinum disk in every tube is an area known as the dark area. If a blue or violet light is seen in one of the tubes, it indicates that the vacuum has been interfered with in some way, and that there is too much air in the tube. It is no longer in working condition, and must be re-exhausted.

The manufacturers tell us we should not use a static tube, that is a tube made for use with the static machine, on a coil. I have done some of my most satisfactory work, however, with a static tube. When a tube has been exhausted by a static machine it will still do very satisfactory work on a coil. Every one should have a considerable number of tubes, for they last longer if they are not kept constantly at work. A tube that has become so high that it cannot be handled with a given machine will often, if rested long enough, recover so that considerable more work may be done with it. The period of rest required varies with the size of the tube and the height of the vacuum.

At present the manufacturers are experimenting to produce a self-adjusting tube, and they have succeeded in adding considerably to the life of a tube, although these tubes are even more variable than the plain tube, and, consequently, are often very disappointing. Dr. F. H. Williams has brought a tube here and has asked me to show it, which has been invented by Dr. Rollins, of Boston.

One difficulty we have with all tubes is the tendency of the anodal end to become red hot; this reacts upon the tube itself and also upon the coil by increasing the resistance and heating the

primary, thus causing the insulation of the secondary to become overheated and melted off. In this way a short circuit is produced within the coil, and the length of the spark is reduced. In this tube a current of water is kept flowing through a double-current stem against the platinum disk, so that the platinum is always cool.

A tube-holder is, of course, an essential, and one with a universal or ball-and-socket joint is the best.

X-ray photography requires very little apparatus compared with ordinary photography, although it requires quite as much skill in the management of the plates, their development, the "posing" of the subject, and the application of the ray. I have found that an ordinary photographic plate does quite as well as the special x-ray plates, and as they are more carefully handled, apparently, they are more satisfactory in the long run. They must be carefully wrapped, preferably by the dealer, in two or three layers of paper. First, a black paper against the plate, and then an outside manilla or orange colored wrapper. The outside wrapper should be marked so that the back and front of the plate can be recognized. Great care must be taken to keep these plates from contact with the ray until they are ready for exposure. They should therefore be kept in a room separate from that in which the x-ray plant is placed, and should never be carried into the x-ray room when the machine is at work. In taking a photograph the plate is laid on a table or stand with the back or glass side toward the table. The part to be photographed is then laid on the plate and the tube is focussed above the part, so as to have its most marked effect upon the most important area to be photographed. The current is then turned on and the rays pass through the part placed on the plate and act upon the gelatine. The time of the exposure depends upon the thickness of the part to be photographed, the distance of the tube from the plate, and upon the penetrating power of the particular tube.

This latter point had best be determined by means of the fluoroscope first. The plates are developed in exactly the same way as any other dry-plate, any good developer answering the purpose.

Formerly an exposure of one hour or one hour and a half was required for a shoulder or chest, while now we can get better pictures by an exposure of ten to fifteen minutes, or even less.

[A photograph was then taken in this way of Dr. Lloyd's hand, and was developed by Dr. Theodore Dunham and exhibited.]

XXV. PRACTICAL EXPOSITION OF THE X-RAYS IN MEDICINE
AND SURGERY.2. X-RAYS IN MEDICINE.¹BY FRANCIS H. WILLIAMS, M.D.,
BOSTON.

YOUR committee has kindly honored me with an invitation to speak on x-rays in medicine, and it gives me great pleasure to present to the New York State Medical Society such portions of the subject as I am able in the time at my disposal.

This new means of studying anatomy, physiology, and pathology in the living body has many sides, but we as practitioners are concerned chiefly with what may directly promote the welfare of our patients. From our point of view, then, this new means may be considered simply as a method of examination, and it is my privilege to-day to indicate to you briefly some of the ways in which it may be of service to physicians rather than to surgeons. It is chiefly adapted to certain lines, and its limitations are drawn by pathological conditions which involve a change in shape, as in cardiac enlargement, in chemical composition, as in rickets and calculi, or in density, as in pneumonia or emphysema. I shall limit myself this evening to a few words about the method of making examinations, and then take up, by way of illustration, some of the diseases in which they most readily find their application.

The apparatus required in making medical x-ray examinations is as yet expensive and difficult to manage. It should be of the best and give a steady light, neither too strong nor too weak, and of a quality to differentiate well between different tissues, that is, adipose tissue, muscles, and tendon. It is important to be able to vary the intensity of the light while looking in the fluoroscope.²

¹ The conditions described in this paper were illustrated by diagrams, charts, and x-ray photographs selected from those made in the course of about one thousand x-ray examinations.

² This may be done with the static machine by varying the length of the spark-gap or the speed of the machine: with the coil by varying the spark-gap, changing the speed of the commutator, or using more or less condenser. I devised some time ago adjustments for thus varying the intensity of the light, and have found them a necessary part of the apparatus. I have also arranged a brush for the commutator, so that it now requires little or no attention.

Patients may be examined in any position. Those in the hospital who are too ill to sit or stand may be placed upon a stretcher and carried to the x-ray room. The stretcher may then be placed upon suitable supports and an examination made without disturbing the patient; in private practice, if the patient is too ill to come to me, I send a portable x-ray apparatus to the house. The room should be darkened and the physician be careful to wait five or ten minutes in the dark room, or else wear dark, smoked glasses for a few minutes (if in the daytime) before making the examination, in order that his eyes may be in a better condition to use the fluoroscope. The position of the tube under the stretcher should be adjusted by plumb-lines, and it should be under the mid-sternum on a level with the fourth rib two feet or more from the patient. The outlines seen in the fluoroscope may be recorded by first dotting, and then drawing them on the skin with a crayon¹ opaque to the rays; but the physician must bear in mind that the skin may be moved either by the crayon, or by the movements in respiration, or by change in the position of the patient. These lines may be traced on tracing-cloth, or they may be measured off and transferred to a chart. I have hundreds of such charts or tracings.

Among the scores of thousands of examinations that have already been made with this new agent by persons necessarily inexperienced, it is not surprising that harmful effects have followed in some instances, but the number of such effects is so small, when all the circumstances are taken into consideration, as to show that with the better knowledge experience will give the rays are practically harmless. Untoward results from x-ray examinations are, I believe, unnecessary and entirely avoidable. I have never seen any inconvenience follow their use in the more than one thousand examinations that I have made.

Among many of the ways in which the x-rays assist us is that demonstrated by Dr. Fisk, of New York, who has shown how gouty deposits may be recognized by an x-ray photograph; he has also pointed out that a differential diagnosis may be made between a gouty and a rheumatic process. I have here a photograph taken from one of my patients in whom a rheumatic process is beginning to involve the bony structures near some of the finger-joints.

Let us now consider the heart in health. The best view of this

¹ This crayon is made by mixing lard and wax with litharge and a little lampblack.

organ is obtained during full inspiration, as then the diaphragm is so depressed as to allow the apex to be seen; in some persons the heart is depressed about one inch and pushed toward the right, so that the ventricle may be indicated on the right side of the sternum. In expiration the outlines of the heart are not so complete, as the diaphragm is then higher. The apex-beat as felt does not always correspond to the apex of the heart as seen in the fluoroscope; by means of this instrument we see that it is sometimes lower down. On the left side of the sternum we see the outlines of the ventricles and the pulmonary artery; on the right side what is seen depends upon the excellence of the apparatus and also upon the individual examined. Under favorable conditions both the right auricle and the border of the right ventricle are seen. During full inspiration the right auricle is, of course, lower in the chest than in expiration.

In disease the fluoroscope enables us to get a much more complete outline of the heart than can be obtained by auscultation and percussion, and even in health, although the difference here is not so marked, the advantage is with the fluoroscope. The size of the heart in disease is an important element in estimating its condition, and guides us in prognosis and treatment. It is not necessary to emphasize before this Society the great value of this knowledge in cardiac disease. The fluoroscope enables us frequently to estimate the size of the right auricle, and also to determine the position of the left and right borders of the heart, whereas by percussion in some cases the heart may seem to be either larger or smaller than it is. In cardiac hypertrophy and dilatation the size and position are more fully to be obtained with the fluoroscope than by any other means. The left border of the heart may sometimes extend beyond the nipple and approach so near the left wall of the chest that percussion gives an area of dulness reaching, for example, to the anterior axillary line, whereas the fluoroscope may show that the heart is not so enlarged as the former method of examination seemed to demonstrate. This exaggerated idea of size is due to the fact that the heart is so abnormally near the left wall of the chest that by percussion its lateral is not distinguished from its anterior portion. We may even obtain a better knowledge of the size of a distended heart by means of the fluoroscope than by an autopsy.

If we look through the body from side to side on a level with

the diaphragm during full inspiration we see a light area triangular in shape, the lower side of which is bounded by the diaphragm, the anterior by the heart, and the posterior, which is less defined, by the spine. It is by means of this area, if the lungs are normal, that we are able to get a view behind the heart and between it and the spine, and this area will be found to vary in size under different conditions. With an enlarged heart it may be much smaller, or it may be nearly or quite obliterated; enlargements of the heart may be detected not only by observing the right and left borders, but also by seeing the posterior and lower borders. A collection of pus or a growth behind the ventricles, or a pericardial effusion, for example, would also alter the appearance of or obliterate this area. The whole of the anterior border of the heart may also be made out in a few individuals, as well as the posterior border, when looking through the body from side to side.

In a much dilated heart we can see that its volume is made smaller by deep inspiration, which shows that it is capable of being compressed by a forced inspiration. In a few cases we may thus be assisted to distinguish between a heart which is simply dilated and one which is hypertrophied. Enlargement of the heart in arterio-sclerosis may be detected, or the unnaturally small heart that occurs in certain conditions. We may also get evidence of changes in the arteries in arterio-sclerosis; I have here an x-ray photograph, that was taken some time ago, which shows normal arteries, and those in arterio-sclerosis would, of course, be even more easily photographed; likewise the radial arteries, for example, can sometimes be seen in the fluoroscope in this disease.

Displacement of the heart when there is pleuritic effusion, especially when the effusion is on the left side, and the heart therefore displaced to the right, is readily seen in the fluoroscope, but often is not made out by percussion. In pleurisy of the left side, with effusion, or when the heart is enlarged, the outline of the right ventricle may be seen much to the right of the sternum. A dilated right auricle, especially in emphysema, may also be made out. In one patient, during convalescence from pneumonia, the heart was attached in such a way that the apex was tilted up at each full inspiration, instead of being lowered.

But the fluoroscope cannot always be employed to ascertain the size and position of the heart, as it requires for its use that the neighboring lungs be in a fairly healthy condition, otherwise these

organs are less permeable by the rays, and do not make the contrast with the more solid heart that is necessary in order to bring it clearly into view. As we shall see later, fluid in the pleural cavity or a dense lung may partly or even wholly obscure some of the cardiac outlines as well as displace the heart. The condition of the lungs may hide from us that of the heart in so far as it is obtained by a direct view with the fluoroscope; but, on the other hand, the condition of the lungs may be an indication of disease of the heart or of the kidneys. If the circulation of the lungs is such as to cause a passive congestion or oedema, it is difficult for the rays to pass through them, and we find the pulmonary areas darker than usual. The practical value of this information may be illustrated by one or two cases.

A. B. was thought by his physician to be suffering from emphysema of the lungs consequent upon asthma, to which he had been subject for sixteen years. There was much dyspnoea. I made an x-ray examination, which showed that the lungs were darkened by passive congestion or oedema and the heart enlarged. Auscultation indicated a mitral lesion. I advised rest, together with digitalis in suitably large doses; this treatment was soon followed by improvement and the disappearance of the dyspnoea.

C. D. had chronic interstitial nephritis, but he was able to be at his business every day. My x-ray examination showed an opacity of the lungs, due to oedema, which suggested that the patient was in a more critical condition than had been indicated by any other sign or symptom, and he was therefore cautioned to put his affairs in order, and thus given an opportunity to advantage his family by many thousands of dollars. He died suddenly within two months.

In certain cardiac diseases we are now not only able to follow the improvement of the patient by the disappearance of the dyspnoea, but also by watching the lungs in the fluoroscope and observing them gradually grow clearer and clearer, and sometimes also by seeing that the enlarged heart has become reduced in size.

Pericardial effusion may be recognized with the fluoroscope more certainly and readily than hitherto, and the outlines of the pericardial sac, when drawn on the chest, make an excellent guide when tapping the pericardium, should that be necessary.

Thoracic aneurism was among the earliest diseases recognized by the medical use of the x-rays, and now an x-ray examination is the accepted way of making or confirming the diagnosis of this disease. Often an aneurism of the thoracic aorta may not be recognized in its early stages, but may be overlooked by several excel-

lent diagnosticians; and, also, a very large aneurism may give no definite physical signs. The following case is of interest here.

M. C., a patient from another State, was thought by his physician to be suffering from a stricture of the œsophagus, and a bougie had been passed every third day for several months. Three weeks before he was sent to me for an x-ray examination the bougie was not used, and the symptoms improved. My x-ray examination showed that he had a small aneurism of the thoracic aorta.

Let us now consider briefly some of the applications of the x-rays in diseases of the chest other than those of the heart and aorta. In health the lungs are readily traversed by the rays, and they appear in the fluoroscope as light areas on either side of the backbone and the heart. The lower portion of the lungs which is bounded by the diaphragm is seen to move up and down through a distance of about half an inch during quiet breathing and to descend during full inspiration to a point about two and one-half inches below its level in expiration. There are three principal ways in which the fluoroscope may lead us to suspect disease in the chest. First, the appearance of the dark areas that occur in tuberculosis, pneumonia, carcinoma, diaphragmatic hernia, gangrene of the lungs and an ecchinococcus sac, infarction, pleurisy, empyema, etc., due to the increase in density which, by obstructing the passage of the rays, diminishes the normal brightness in the chest or changes its normal outline. Second, the occurrence of abnormal brightness, which is found in emphysema and pneumothorax, consequent upon decrease in density, which makes the lung area look lighter than in health as seen in the fluoroscope. Third, the restriction of the maximum excursion of the diaphragm and its altered position and curve from that found in health.

The fluoroscope shows us that certain changes are characteristic of special diseases. For example, in tuberculosis I observed nearly two years ago¹ that the consolidated portion of the lung appeared darker than normal in the fluoroscope, this consolidation beginning, usually, at the apex of one lung. The expansion of the lung is also reduced either by changes in itself or the pleura, and therefore the excursion of the diaphragm downward is diminished during full inspiration; but this muscle is carried up into the thorax as high, or, it may be, even higher than in health. If a patient with

¹ See "Notes on X-Rays in Medicine," Transactions of the Association of American Physicians, April, 1896.

tuberculosis is examined from time to time with the fluoroscope, the pictures presented are usually as follows : First, the apex of one lung is darker, as already stated ; the clavicle and upper ribs are less marked on the diseased than on the well side ; the darker area extends more and more as the disease progresses, and finally may cover nearly all the space occupied by one lung so that no ribs or other outline are seen on the affected side. Before this latter condition occurs the apex of the other lung begins to darken, and this area continues to extend. The diminishing excursion of the diaphragm, which is also a characteristic feature of this disease, may likewise be observed and sometimes may be the earliest sign of an abnormal condition of the lung. For example, B. F., a woman aged forty-six years, with bronchitis, was a patient in my service at the Boston City Hospital in February, 1897. The only evidence of other disease of the lung was the diminished excursion of the diaphragm. This moved only one and a quarter inches on the *left side*, which was less than normal, and was higher in the chest than in health, but full two inches on the right side. She was discharged from the hospital on March 4, 1897, but was readmitted into another service in December of the same year. The signs by auscultation and percussion were then found to be indefinite, but bacilli were present in the sputum. On January 5, 1898, I examined her again with the fluoroscope, which showed that the whole *left* apex, and to a less extent the right apex, was darker than normal and that the excursion of the diaphragm on the *left side* was less than half an inch and on the right side one and one-quarter inches.

In some cases it is possible by means of the fluoroscope to anticipate, especially in acute tuberculosis, the knowledge gained later by auscultation and percussion, and also to better appreciate the amount of lung involved in the different stages of the disease ; I have detected signs of tuberculosis in the lungs by means of the fluoroscope after a physical examination failed to show them, and these signs were confirmed by the tuberculin test or by finding the bacilli of tuberculosis. It is essential in this disease to use every possible means to determine the condition of the lungs in order to decide upon the course the patient should pursue, and by the aid of the information obtained from the fluoroscope a long and costly journey in a fruitless search for health may, in some cases, be avoided ; that is to say, we may find by means of the fluoroscope

that the lungs are more diseased than the usual physical examination had indicated. On the other hand, we may detect, it is too soon to say in what proportion of cases, an abnormal condition of the lungs before it is suggested in any other way, and so early that the best opportunity for arresting the disease is afforded. It is unnecessary to emphasize the value of early recognition in a disease so amenable to treatment in its beginning. I advise young adults with a tubercular family history to have an x-ray examination made from time to time, or immediately, if they are out of condition. In other papers¹ I have discussed at length the appearances found in the fluoroscope in pulmonary tuberculosis, and therefore will not go into further detail here.

In pneumonia the affected areas are easily recognized in the fluoroscope, and in a central pneumonia may be seen when auscultation and percussion do not reveal them. The excursion of the diaphragm is also restricted, and the heart may be much displaced to the right if the pneumonia is only on the left side. As the patient improves the dark areas are seen to disappear and the movement of the diaphragm to lengthen. A diminished respiratory movement and areas darker than normal may be seen after an abnormal condition of the lungs ceases to be detected by auscultation and percussion. An empyema, as is well known, may follow pneumonia, but may be overlooked for some time; we can, however, get evidence of its presence by means of the x-rays. The pleuritic effusion which sometimes accompanies a pneumonia may be suspected in a given case and yet proved not to exist if a bright area and the outline of the diaphragm below the dark pneumonic portion are visible in the fluoroscope, unless the fluid is encysted.

In pleurisy with effusion, or empyema, the outlines of the lower part of the chest are dulled or obliterated, especially the diaphragm line. If the effusion is large the whole chest is dark and the heart and mediastinum are displaced. In a circumscribed pleurisy or empyema an exploring needle may fail to reach the desired spot, but we may sometimes, by means of the fluoroscope, outline exactly the limits of the fluid. In one patient, I drew such an outline, and its correctness was confirmed at the autopsy.

¹ "A Study of the Adaptation of the X-Rays to Medical Practice." Medical and Surgical Reports of the Boston City Hospital, January, 1897.

"The Roentgen Rays in Thoracic Diseases." American Journal Medical Sciences, December, 1897.

If the lungs are less dense than normal, as in emphysema, the area is brighter than in health and the distended lung may reach lower down in the chest than normal. The maximum excursion of the diaphragm is much less than in health, as this muscle does not rise so high in expiration. These two signs are characteristic of emphysema, and in the later stages the enlarged ventricles and also the dilated right auricle are seen; the heart also lies in a more vertical direction, and its position is not much changed by a deep inspiration. In young people especially an emphysema may be overlooked by auscultation and percussion, but is readily detected in the fluoroscope. I recall a girl of fifteen who had dyspnoea on exertion, the result of an emphysema. An appreciation of this condition was obtained only by my x-ray examination; on the other hand, the fluoroscope may show that there is little emphysema when auscultation and percussion suggested that it was present to a considerable degree.

In pneumothorax the diaphragm is very low down and loses its normal curve and movement on the affected side, and the heart and mediastinum are seen to be displaced to the healthy side. The fluoroscope is also useful in pneumohydrothorax when the patient is examined sitting up. (See Figs. 1 and 2.)

It is unnecessary to refer further to special diseases; it is obvious that certain pathological conditions involving change in density will make the lungs more or less opaque to the rays. It is of interest in passing to note that even in health the brightness of the pulmonary area varies. It is lighter in deep inspiration than during expiration. There must, therefore, be more blood in the lungs at certain stages of respiration than at others. Further,

DESCRIPTION OF PLATE.

FIG. 1 illustrates the appearances in the fluoroscope in a patient with tuberculosis on the right side and pneumohydro- or pneumopyothorax on the left side.

The right side is encroached upon by the displaced heart and by the dense tuberculous process at the top of the lung; the excursion of the diaphragm between expiration and inspiration is less than normal (the broken line indicates its position in expiration). On the left side the appearances, the patient being examined in the sitting position, remind one of a tumbler partly filled with ink. If the patient bends backward or forward the height of the fluid on the chest wall changes; if he bends to the left, the beating heart is partly exposed to view; if he is shaken gently, the surface of the fluid is seen to be agitated; it is also seen to be disturbed by the pulsation of the heart. If the patient is examined lying down, the whole of the left side is seen to be dark if a sufficient quantity of fluid is present.

This diagram is made clearer by a comparison with Fig. 2, which illustrates the appearances seen in the fluoroscope in a normal chest.

FIG. 2 shows the heart and diaphragm of normal chest as seen in the fluoroscope during full inspiration. The broken lines show position of heart and diaphragm in expiration.

FIG. 1.

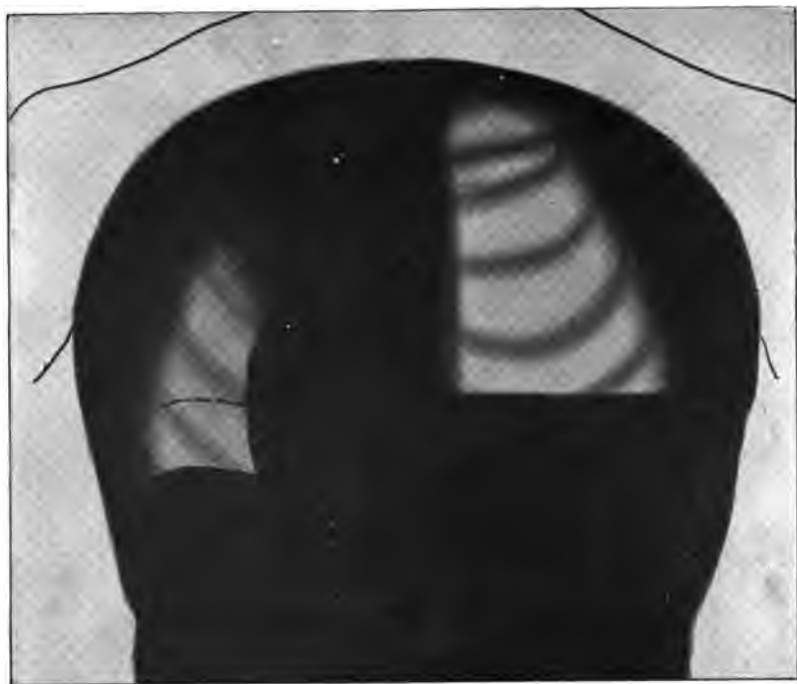
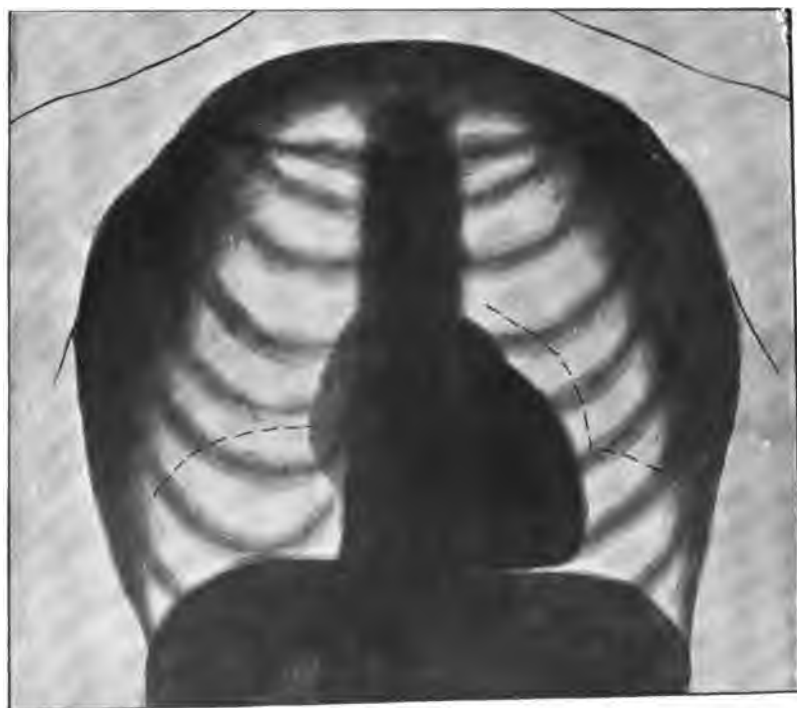


FIG. 2.





not all persons have the same pulmonary brightness. It is less in a stout muscular man than in a thin man. We can learn to make allowances for these differences in individuals, as we do in percussion, and, further, we usually have an opportunity to compare a healthy with a diseased side.

In the four following cases, the only ones in which both an x-ray and a post-mortem examination were made at the Boston City Hospital, there was complete correspondence between my x-ray examination and the autopsy which occurred not long after.

G. H. was a young man whose lungs, as seen in the fluoroscope, were healthy; the post-mortem gave the same result. It was interesting to note that the heart in death was somewhat higher than in life, and did not extend so far to the right.

P. C., a patient with pneumonia. Both the fluoroscope and the autopsy showed that the whole of the right upper lobe and a portion of the middle lobe were involved.

D. F., a patient with an old encysted pleurisy extending vertically along the outer wall of the left chest from the third to the ninth rib. These outlines seen in the fluoroscope corresponded with what was found at the autopsy.

J. K., a patient with arterio-sclerosis; observations and tracings made by means of the fluoroscope showed dark areas to the right of the sternum, and at the post-mortem a calcification in the aorta near the heart was found.

Since this paper was read a post-mortem has been made of a patient who died twenty-four hours after his admission to the hospital. He was not examined by the x-rays, but the autopsy showed how serviceable this examination would have been in prognosis. The patient was forty years old, had pneumonia of the whole of the upper left lobe, emphysema of the lungs, and a right auricle that was then so distended as to be equal in size to the ventricles. The pneumonia would have appeared in the fluoroscope as a very dark area, and the right auricle would have been most conspicuous in contrast to the bright emphysematous right lung.

The abdomen is a more difficult field for exploration; nothing is seen as clearly there as in the thorax; the outline of the liver may be followed and also that of the spleen. I have also seen the outline of the lower portion of the left kidney.

Improved apparatus will doubtless enlarge the field of usefulness of this method of examination. Among recent improvements is a Crookes tube in which the platinum is kept cool by a stream

of water running through the hollow anode, which makes it practicable to use a light of far greater penetrating power than has hitherto been possible. This is the invention of Dr. William H. Rollins, of Boston, and is only one among several excellent improvements made by him in the course of his investigation of x-ray tubes. Another is his method of lowering the vacuum after it has become too high by the continued use of the tube. Dr. Rollins has also made another invention for surgical purposes. This is an aluminum camera, and consists essentially of an aluminum tube in the interior of which is a photographic film. The metal protects the film from light and moisture and yet allows the passage of the rays. Such an instrument may be put into any cavity of the body, as the rectum, for instance, and an x-ray photograph taken of a phosphatic calculus in the bladder.

In using these x-ray examinations, as in auscultation and percussion, many cases must be studied in order to recognize the conditions presented, and it is obvious that this method of examination is not so easily carried out as most others. It would be well, however, for the students in all our medical schools to be familiarized with the appearances of the chest as seen in the fluoroscope while studying auscultation and percussion, for there is much that after having been demonstrated by both this instrument and the latter method will later be recognized more easily by auscultation and percussion alone. The eye having assisted the ear to make a more complete picture of certain conditions, the physician is enabled to get a better idea of these conditions in cases where, for lack of an x-ray apparatus, he must use the ear alone. Further, the x-ray examinations will teach him to appreciate better the limitations of auscultation and percussion, as well as to interpret more correctly the information derived from them.

X-ray examinations will be found useful to life-insurance companies.

In making a diagnosis physicians will find that, although much that the x-ray reveals can be recognized in other ways, it would often be an advantage to have this information confirmed by another method, and we must also appreciate that it can extend our knowledge into a field that was previously beyond our reach. A diagnosis may be made by an x-ray examination alone in certain cases, as in aneurism, emphysema, and pneumothorax; but, as a rule, it is only one method, and should be used in connection with

others; the fluoroscope and stethoscope, for instance, supplement each other; x-ray examinations, in suitable cases, give earlier evidence of disease than the older methods; I daily find them indispensable in making a complete examination of patients who may have some disease of the chest, and can by them determine in some cases the presence of an abnormal condition, or, more fortunately, its absence, or sometimes completely change the diagnosis which had previously been made.

The x-rays are still too recent a discovery to have reached the limit of their usefulness, and their application in medicine deserves and will repay careful study.

XXVI. PRACTICAL EXPOSITION OF THE X-RAYS IN MEDICINE AND SURGERY.

3. THE USE OF THE X-RAYS IN SURGERY, WITH EIGHTY-FIVE STEREOPTICON VIEWS.

BY ARTHUR L. FISK, M.D.,
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THERE have been three important discoveries during this century which have greatly extended the usefulness and the scope of operative surgery; they are the discovery of anæsthetics, of antiseptics, and, finally, of the x-rays. This last promises to be of the greatest assistance in diagnosis, for by means of the rays it has become possible actually to look through the tissues of the body, and to examine with the eye lesions which have hitherto been invisible, and the existence of which has been determined by physical signs which too frequently are very misleading.

The scepticism which has so generally existed, and still exists, as to the practical surgical value of the Roentgen rays is because of too great expectations and the failures and disappointments which must necessarily attend the development of any new science.

The unusual progress of the last two years, however, in consequence of which exposures of only a few minutes, even of seconds, are sufficient now to secure the most excellent skiagrams where formerly long exposures resulted most unsatisfactorily, together with the brilliant achievements of Williams, Goodspeed, Knolls, and others, show what even now the possibilities are, and therefore what may be expected in the future.

An experience of more than a year with the x-rays in office prac-

tice has thoroughly convinced me of their value as an additional aid in securing greater accuracy of diagnosis, because actual sight either corroborates or corrects the conclusion which results from the physical examination.

This applies particularly to their use in the examination of the joints ; of the bones in fractures, dislocation, inflammatory disease and neoplasms, and also in the detection and localization of foreign bodies, especially metallic, within the tissues.

Their rôle in surgical work is similar to that of the ophthalmoscope, laryngoscope, and cystoscope ; this I shall demonstrate to the Society this evening by a series of stereopticon slides that, with but a few exceptions, have been selected from the office-practice of Dr. Abbe and myself.

The value of the rays in determining, in obscure injuries of the joints, whether an actual lesion of the bone has occurred or not is well illustrated by the third slide of the series, in which it will be seen that the corner of the base of the first phalanx of the middle-finger has been chipped off. Now, by our former methods of diagnosis this could not be determined ; there existed simply localized tenderness, but the skiagram at once showed the exact injury.

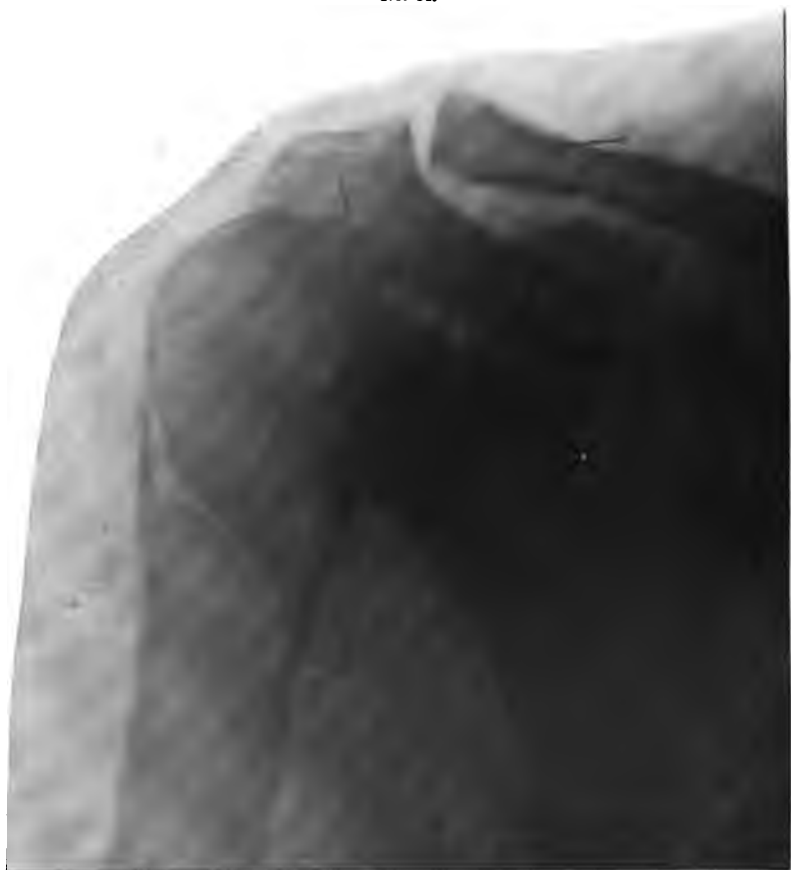
By fluoroscopic examination of fractures, the exact site, the line of fracture, whether simple or comminuted, and the amount of displacement are readily learned. This knowledge enables us better to determine the direction of force necessary for the proper reduction, and also the better to apply the splints so as to hold the fracture securely ; and, furthermore, we can examine the fracture after the splints have been applied, and know whether they are holding the fragments properly or not.

As a means of differential diagnosis between fractures and dislocations, particularly in stout people, and where there is much swelling of the tissues, fluoroscopic examination is very valuable. Slide No. 35 illustrates this very well.

A stout woman, aged forty-five years, met with an injury some months previous to consulting us. There was some uncertainty concerning the diagnosis, but the arm was treated according to routine practice for injuries at the shoulder-joint. Several surgeons who were consulted were unable to decide the exact condition. Ten minutes' exposure to the x-rays showed the injury to have been a fracture of the surgical neck, followed by union at an angle.

In the early detection of new growths connected with bone these

No. 34.



Comminuted fracture of the humerus at the surgical neck.

No. 39.



Skilgram of Pott's fracture, four months after the accident.

No. 40.



Skilagram of Pott's fracture, eight months after osteotomy of the malleoli to correct the deformity.

No. 40.



Skiagram, same as No. 40. Eighteen months after the osteotomy.

rays are of great assistance, especially in differentiating between malignant tumors of the bone, both central and subperiosteal, and small exostoses.

The three slides which I shall show you, of new growths connected with the humerus, demonstrate this beautifully. The diseased portions of the bone contain less of inorganic salt, and are therefore more permeable to the rays, consequently give a lighter shadow, showing the structural changes or an entire absence of a portion of the shaft.

A wider field of osteoplastic surgery is opened through the use of these rays, especially in those congenital deformities where there is uncertainty about the osseous development.

One of my first cases, a Pott's fracture, sustained in consequence of a fall from a bicycle, had united with such degree of inversion of the ankle as to make walking almost impossible. Slides Nos. 38 and 39 show that there was a fracture of both the external and internal malleoli. While most authorities state that the results of operation in such cases are not satisfactory, yet from the knowledge secured from the radiograph I decided to do cuneiform osteotomy of the fibula, to split off the internal malleolus, and, after so doing, to bring the foot into the proper position and hold it by means of plaster-of-Paris. The result obtained was most satisfactory, as shown in slide No. 40, and, where the person was a cripple before, she now walks with perfect comfort and ease.

The lantern-slides from 56 to 63 are of a case of congenital rickets, showing the condition of the tibia and fibula before and after operation. The skiagrams enabled me to determine at which point there was the greatest deformity, and especially where a cuneiform osteotomy should be done. The point of interest connected with the skiagrams which were taken after the operation is that in the leg, in which I made a green-stick fracture of the fibula, the result is better than in the other where both the bones were completely fractured.

Valuable as the rays are in determining lesions of the bones, their usefulness is as great or even greater in locating foreign bodies; particularly is this so of bullets. Hitherto the course of the bullet, with its position within the tissues, has been one chiefly of conjecture; but now we are able to locate it with exactness, and thereby save unnecessary probing and exploration, which is certainly a distinct gain.

Beck published a case of a young man who was shot in the forearm just above the head of the radius. At a subsequent exploratory operation a piece of the ulna was found chipped out, opening the cancellous structure, in which it was supposed the bullet had become imbedded. Some months later, after the discovery of the Roentgen rays, a skiagram was taken by Professor Pupin, and the bullet was found to be imbedded in the tissue over the lower portion of the humerus.

Dr. Williams reports a case in which there was a bullet wound of the back over the left scapula. Examination with the fluoroscope showed the bullet in the right back under the right scapula.

Bullets within the skull can be seen and accurately located with reference to the position of the fissures of Sylvius and Rolando by marking these out with metal bands on the surface of the skull. It must be remembered, however, in fluoroscopic examinations or in making skiagrams of the head, that the rays are obliged to penetrate two thick tables of bone, and that in most instances the density of the substance within is less than that of the bone, consequently the shadows obtained are less distinct. Some cases have been reported in which the shadow of the foreign body has been obtained by a skiagram, and yet at a subsequent operation it was impossible to find this body. In consequence of this the observers were inclined to question the value of the rays. This is hardly right, because the error is not in the use of the rays, but in the method of localization of foreign bodies imbedded deeply within the tissues. It is necessary, in order to accurately determine the position of such a body, to find the intersection of the two planes at right angles to one another at which the body lies.

Dr. Williams has succeeded in accurately locating bullets in the following way :

“ The fluoroscope is placed directly on the thigh (let us suppose the bullet is there), and the examination is begun. After looking a moment the spark-gap may be changed a little in order to increase or diminish the light, as by means of this variation more can be seen, certain things showing better in a bright light and others in a less brilliant one. With a bullet it is generally well to use a considerable amount of light. After the fluoroscope has been moved about a little, the shadow of the bullet is found, and the spark-gap may again be changed in order to get as clear a shadow as possible. The physician, while still looking through

No. 56.



Congenital rickets ; before operation.

No. 57.



Skigram of the bones, showing the lateral bowing before operation.

No. 58.



Skigram showing the anterior bowing before operations.

No. 59.



Congenital rickets: after operation.

No. 60.



Skia-gram of the bones, ten weeks after cuneiform osteotomy of the tibiae. Front view.
The left-hand cut is of the leg in which the fibula was simply bent.

No. 61.



Skiagram taken ten weeks after cuneiform osteotomy of tibia. Side view.

the fluoroscope, then makes with the pencil already described a mark over the place where the bullet seems to be, and directly under the fluoroscope; he then makes a corresponding mark on the side of the thigh nearest the Crookes tube, over the shadow of the bullet, and draws 1 and 1 by the side of each of these two marks. Then, while still looking through the fluoroscope, the Crookes tube should be moved horizontally a few inches to-and-fro, in order to learn how deeply the bullet is imbedded, for if the shadow of the bullet moves considerably in the fluoroscope the bullet is some distance away. If it moves very little it must be near the fluoroscope and the surface of the skin. If far from the surface its shadow will, of course, be ill defined; if near, it will be very sharply defined. Next, the patient should be turned so as to allow the physician to look through the thigh in a direction about at right angles to that first taken, and, as before, a mark should be made with the pencil over the place where the bullet seems to be, both when the point of the pencil is held directly under the fluoroscope and on the side of the thigh nearest the Crookes tube. These points should be marked 2 and 2, and the bullet will be found at the point where the line drawn from 1 to 1 intersects that drawn from 2 to 2. I have used this method for locating bullets in different parts of the extremities, and in the neck, thorax, back, and abdomen, and usually the situation of the bullet is readily determined by this means. The first bullet I located in this way was in April, 1896."

Thus far the efforts to photograph calculi of the gall-bladder, kidneys, and urinary bladder have not been at all satisfactory. The reason for this is to be found in the law which governs absorption of the rays of light; that is, that the bodies having the greatest atomic weight are the ones which absorb the most light, and are consequently the most opaque.

Roentgen, from his early experience, concluded that the absorptive power (or opacity) of a substance for his rays was approximately proportioned to its density; but Dewar states that the atomic weight, rather than the density, governs this. Williams states that the difference in permeability is due, first, to bulk; and, second, to chemical composition. While the first needs no comment, the second deserves attention for a clear appreciation of the possibilities and limitations of the x-rays, and in differentiating between a healthy and a diseased part. This knowledge leads us to

avoid mistakes and disappointments on the clinical side, which would not be experienced did physicians and surgeons appreciate the relations of the x-ray to chemical composition.

By a series of experiments he found that the rays penetrated calculi made up of uric acid, cholesterine, and biliary salts very readily, but were obstructed by calculi containing oxalate of calcium in considerable portion, phosphate of calcium, and other inorganic salts. Further study showed that organic substances were quite as readily penetrated by the x-rays as the soft tissues of the body; therefore it is obvious that any attempt to detect calculi in the body, which are composed of organic compounds chiefly, would, as far as our knowledge now goes, be futile, whereas those of the inorganic variety may be detected. In other words, that the atomic weight of the organic calculi is about the same as that of the tissues surrounding them, and consequently the intensity of the x-ray required to penetrate these tissues is so great that the calculi themselves offer no greater obstruction to their passage; therefore they do not cast a shadow.

The object of the exhibition this evening is to give a practical demonstration of the workings and the value of the x-rays in surgical work. For this purpose I have prepared eighty-five stereopticon views which I shall show you, and by which I trust that I shall convince you of the value of this new discovery. I have divided my slides into four groups:

I. Skiagrams of the upper extremities, showing the normal condition of the bones and joints; then various fractures and dislocations.

II. Skiagrams of the lower extremities, normal conditions, fractures, dislocations, excision of the knee-joint, etc.

III. Skiagrams of the chest, head, and abdomen.

IV. Skiagrams of foreign bodies.

X-RAY VIEWS.

1. Normal hand, young woman, aged twenty-two years. 2. Fracture of head of second phalanx of little finger. 3. Fracture of base of first phalanx of middle finger. 4. Colles' fracture, showing posterior dislocation, typical silver-fork deformity. 5. Colles' fracture. 6. Colles' fracture in plaster-of-Paris. 7. Ultimate result of Colles' fracture. 8. Sound hand for comparison. 9. Impacted Colles', showing ulnar deformity. 10. Colles'

oblique fracture. 11. Colles' oblique fracture. 12. Green-stick fracture of lower end of radius in boy aged seven years. 13. Separation of the epiphysis of lower end of radius. 14. V-shaped fracture of lower end of radius. 15. Side view of dislocation of semilunar bone (Knolls). 16. Anterior and posterior view of same, exposure two minutes. 17. Fractures of radius and ulna in the upper third. 18. No. 17 in different position. 19. Fractures of radius and ulna. 20. Another view of No. 19. 20. Fracture of ulna and radius, showing periosteum. 21. Transverse fracture of the radius in the middle, from direct violence. 22. Fracture of the radius in the lower third; side view showing displacement. 23. Same as No. 22, after reduction, anterior and posterior view. 24. Lateral view through normal elbow. 25. Anterior and posterior view through a normal elbow. 26. Fracture of olecranon. 27. Same as No. 26, in plaster-of-Paris splint. 28. Same as Nos. 26 and 27 after removal of splint. 29. Fractures of external condyle, lateral and anterior and, 30, posterior views, in child. 31. Fracture in internal condyle. 32. Fracture of humerus, lower third, showing periosteum. 33. Transverse fracture of humerus, middle third, showing silver wire, old lady, aged seventy-six years. Ununited. 34. Fracture of surgical neck of humerus. 35. Fracture of surgical neck of humerus, union at an angle, taken for a dislocation, in an exceedingly fat woman. 36. Subglenoid dislocation of humerus (Knolls). 37. Side view of normal foot. 38. Side view of ankle-joint, in case of Pott's fracture. 39. A view of both ankles, one normal, and one showing a typical Pott's fracture. 40. View of No. 39 taken several months after an osteotomy of the malleoli. 41. Oblique fracture of tibia. 42. Same as No. 41. 43. Fracture of both bones, radius and ulna, in lower third, comminuted. 44. Fracture of tibia and fibula in lower third, showing bad union, posterior dislocation. 45. View of No. 44 from the front. 46. Shows epiphyseal line of tibia and fibula. 47. Normal knee-joint, antero-posterior view. 48. Fracture of patella treated by usual method, x-ray taken four months after the injury. 49. Same, flexed. 50, 51, 52. Fractured patellæ which were sutured subcutaneously by Stimson's method. 53. View of knee-joint, which was excised in 1888 for tuberculosis. 54. Radiograph of knee, showing tubercular disease. Erosion of the cartilages. 55. Floating cartilage of knee. 56. Case of rickets,

photograph. 57. Radiograph of same, showing *lateral* bowing. 58. Same, showing *anterior* bowing. 59. Photograph after operation. 60. Anterior view of legs after operation. 61. Lateral view of legs after operation. 62. Photograph of gouty hand. 63. Radiograph of same. 64. Photograph of same. 65. Radiograph of same. 66. Photograph of sarcoma of the arm. 67. Radiograph of same. 68. Osteosarcoma of the shaft of the humerus, woman, aged sixty-eight years. 69. Sarcoma undergoing myxomatous degeneration of the shoulder; man, aged thirty-nine years. 70 and 71. Radiographs showing arterial sclerosis of the brachial artery (Knolls). 72. View through normal pelvis (Knolls). 73. Congenital malformation of the hand (Knolls). 74. Congenital malformation of feet (Knolls). 75. Radiograph showing the heart.

FOREIGN BODIES.

76. Needle in foot. 77. Bullet in head of tibia. 78. Needle in carpus. 79. Bullet in palm of hand. 80. Bullet in thorax. 81. Whistle in the oesophagus (Knolls). 82. Needle in hand. 83. Bullet in brain (Knolls).

XXVII. PARALYSIS: ITS FORMS, PROGNOSIS, AND TREATMENT.

BY EDWARD D. FISHER, M.D.,
NEW YORK.

THE question of the form of the paralysis should be the first to be considered in each case presenting itself for examination. The simplest and most practical division or classification is that based on the situation of the lesion or disease causing the paralysis. We may say, then, that there are four forms or types of paralysis based on this theory—*i. e.*, the cerebral, spinal, peripheral nerve, and intra-muscular. The special symptoms always present in disease of these divisions of the nervous and muscular systems, especially the distribution of the paralysis and the trophic condition of the muscles affected in each, make the diagnosis usually an easy one.

With these explanatory remarks I will take up the first form of paralysis under our classification—*i. e.*, cerebral paralysis. The usual causes are hemorrhages, meningeal and intra-cerebral, throm-

bosis (due to atheroma of the cerebral vessels, usually the result of old age or chronic nephritis, or, again, to endarteritis syphilitica), embolism, tumors, injuries. One characteristic of the paralysis is the distribution, which in the majority of cases is unilateral, involving the lower half of the face only, with deflection of the tongue to the paralyzed side and paralysis of the upper and lower extremity of the same side. A second marked condition is the absence of any atrophy or wasting of the muscles (except long after from disuse). The muscles retain their tonus and remain firm; there is often rigidity or spasmodic contracture from the beginning, and this condition is always present later in the course of the disease, with exaggeration of the reflexes—*i. e.*, in the lower extremity; there is exaggerated patellar reflex and ankle clonus. Again, there are no changes in electrical reaction. There is always a normal response to both the faradic and galvanic currents.

This condition of paralysis without wasting, with the presence of increased myotatic irritability and normal electrical response, differs from all the other forms of paralysis referred to, and is due to disease of the motor or pyramidal fibres, which pass down from their origin in the cells of the cerebral cortex through the crus, pons, and medulla into the lateral column in the opposite side of the spinal cord. Any lesion of these pyramidal fibres, whether situated in the cortex, subcortical region, internal capsule, crus cerebri, pons, medulla, or lateral tract of the spinal cord, must give and can give only this so-called cerebral type of paralysis—*i. e.*, that form in which the muscles do not atrophy, present no electrical changes in reaction, and are subject to increased myotatic irritability.

We see from the above remarks that disease of the lateral tracts of the spinal cord, as in lateral sclerosis, gives us a cerebral type of paralysis. This is easily understood when we stop to consider that the tract involved in this spinal disease is essentially a cerebral tract of fibres which start from the brain in their course to the cord, receive their origin and nutrition in the cells of the cortex, and serve the muscles only in carrying the impulse or order of action from the brain to them. The muscles depend for their nutrition and growth only on the multipolar cells of the anterior horns of the spinal cord, conveyed to them through the anterior spinal nerves. The form of the paralysis, therefore, is the same wherever the pyramidal tract is diseased; the localization of the

lesion depends on symptoms, the result of lesions involving other parts than this tract alone, and serve as landmarks as to the site of the lesion.

The second form to which I would direct your attention is the spinal type, and here I would refer only to disease of the anterior horns, for I have already placed paralysis from disease of the lateral tracts into our cerebral type. The usual causes of disease of the anterior horns of the spinal cord are inflammation, acute and chronic, hemorrhages, new growths, injuries, and compression, as in caries, spinal fracture, dislocations, etc. The special characteristics of this paralysis are atrophy or wasting; loss of tonus of the muscles, and therefore flaccidity; loss of reflexes; loss of response to the faradic current, and the reaction of degeneration to the galvanic current, always in acute disease, and at least decreased response to faradic and galvanic currents in the chronic forms, or a partial reaction of degeneration to galvanism with decrease or loss of faradic response; and, lastly, an absence of sensory disturbance, either anæsthesia or hyperæsthesia.

The most common forms of disease which give these characteristic symptoms are poliomyelitis, acute and chronic, and progressive muscular atrophy of the spinal type. These diseases have their own special etiology and course, which it is not in my province at this time to go into, but they all have that character of paralysis, with wasting, electrical changes, and loss of myotatic irritability, which absolutely differentiates them from paralysis of cerebral origin. Again, in the spinal form the distribution of the paralysis—that is, the muscles affected—differs from that of the cerebral type, being usually bilateral, affecting both sides; or, again, involving only an upper or a lower extremity, or an upper extremity of one side with the lower of the opposite side; while, as I have said, in the cerebral form hemiplegia, or paralysis of one side, usually including the lower half of the face, is the common type.

In transverse myelitis we have both the spinal and the cerebral types of paralysis—that is, at the site of the lesion we have the muscles paralyzed, atrophied, flaccid, with loss of reflexes, and the characteristic changes of electrical response—*i. e.*, the spinal type; while below the lesion the paralyzed muscles do not waste, are rigid, have exaggerated reflexes, and present no electrical changes—*i. e.*, the cerebral type.

We will next consider our third form—the peripheral nerve

paralyses. The usual causes are inflammation from diathetic blood states—as rheumatism, gout, etc.; or some micro-organism—as in diphtheria, typhoid, malaria, beri-beri; or, again, some chemical or metallic poison—as alcohol, arsenic, lead, mercury, etc.; or, lastly, injury resulting in compression, lacerations, or section of the nerve or nerves. The character of the paralysis is of the spinal type—*i. e.*, wasting, flaccidity, loss of reflexes, and electrical changes, but associated with it we usually have marked sensory symptoms, especially when the disease is acute in its onset. In acute inflammation of the peripheral spinal nerves there is always great pain on pressure along the course of the nerves, and also in the muscles supplied by these nerves. There is also subjective pain of a burning, gnawing character, almost more unendurable than true neuralgia. The most typical example of this is seen in acute alcoholic multiple neuritis. There is almost always also some disturbance of general sensation, showing itself in incomplete anæsthesia, paræsthesia, etc.

In chronic inflammation of the peripheral nerves, as more commonly observed in lead paralysis, the sensory disturbance is much less marked, often insufficient for the patient to observe it subjectively, although on careful examination it may be brought out objectively. When the nerve is destroyed, either by disease or by injury, of course the paralysis is always accompanied by complete loss of sensation of the parts supplied by it. This sensory disturbance is not present either in cerebral or in spinal paralysis, and is thus of great value as a diagnostic differential point, especially between anterior-horn disease in the spinal cord and peripheral-nerve paralysis.

In transverse myelitis, indeed, we have loss of sensation below the lesion in the spinal cord, due to disease of the sensory tract, but this sensory disturbance differs from that of the nerve lesion in that on pressure there is no pain either in the muscles or in the nerves. This differential point is of the greatest importance often in our diagnosis between acute multiple neuritis and acute transverse myelitis.

The distribution of the paralysis in nerve lesions is also somewhat characteristic. A single nerve may be affected, as the musculo-spiral or facial, from either injury, rheumatism, gout, exposure, etc. Certain poisons, again, as that causing diphtheria, affect especially the throat and eye muscles, together with bilateral

involvement of the upper and lower extremities. Again, lead involves the extensors, especially of the forearm and the muscles of the hand, only rarely affecting the lower extremities; while alcohol and arsenic first involve the lower extremities, giving double foot drop, and later, as a rule, pass to the upper extremities.

Our last form is intra-muscular paralysis or so-called muscular dystrophy. This disease is rare as compared with those already referred to. Its cause is obscure, apparently due to some hereditary influence, and has its seat in some embryonal developmental defect. It is observed often in various members of the same family or in collateral branches. Resembling as it does progressive muscular atrophy, it might properly be termed hereditary progressive muscular atrophy with as much appropriateness as we speak of hereditary ataxia. Here the paralysis is of the spinal type, resembling, as we have said, spinal progressive muscular atrophy—*i. e.*, the muscles are wasted, although they may at first appear hypertrophied from fatty infiltration of the muscle fibres and at times actual enlargement of individual muscle fibres; ultimately with time the wasting becomes extreme. There are also flaccidity, loss of reflexes, and electrical changes, characterized by decreased response to faradism and partial reaction of degeneration. Instances of this disease are pseudo-hypertrophic paralysis, Erb's scapulo-humeral type, etc. This form of paralysis is also distinguished by the distribution of the paralysis—in one form affecting especially the legs, in another the upper arms and thighs, or again associating with this the face, giving us then the so-called facio-scapulo-humeral type. Their distribution, their hereditary character, and their occurrence in youth sufficiently diagnosticate them.

PROGNOSIS. In cerebral paralysis, if the pyramidal tract has been destroyed in any part of its course, recovery is impossible; restoration of nerve fibres in these tracts after their destruction never takes place, as has been proved experimentally and demonstrated by pathology. Paralysis resulting from compression only, as in Pott's disease, etc., even when of long duration, may be entirely recovered from. The prognosis is therefore unfavorable, as a rule, as in most cases of cerebral apoplexy the lesion is more or less a destructive one.

Acute spinal paralysis due to affection of the anterior horns is also rarely recovered from. Here, again, as also is usually the case, there has been an actual destruction of nerve structure—*i. e.*,

the nerve cells, and they can never be restored. As a rule, one or more extremities remain atrophied and paralyzed. Chronic or subacute poliomyelitis is much more likely to be arrested in its course and recovery occur.

Degenerative disease of the anterior horns or progressive muscular atrophy is incurable, although there may be by appropriate treatment much delay in its usual progressive course.

Transverse myelitis, in what may be called favorable cases, is usually recovered from with evidence of a more or less marked condition of spastic paraplegia.

Peripheral nerve paralyses are usually recovered from; the outlook is more favorable than in any of the other forms of paralysis.

Muscular dystrophies are also progressively unfavorable. A few patients have been reported as having recovered, at least partially, under careful massage, electricity, and exercise; but this is certainly the exception.

TREATMENT. While, on the whole, the prognosis is unfavorable as to recovery in these various forms of paralysis, with the exception of peripheral nerve lesions, still much can be done either to alleviate the existing conditions or to stay the progress of the disease. In the cerebral type the rigidity and contractures of the muscles can be lessened by massage and electricity, and the form most favorable is the galvanic current, as often faradism may stimulate or irritate the muscles to increased contraction. Hydrotherapy, especially as carried out in some of the institutions at the various springs—as Virginia Hot Springs, Richfield—is very useful. In poliomyelitis the treatment of the paralyzed muscles should be long persisted in. Even a year after the onset, by manipulation of the individual muscles and electricity applied in the same particular manner, much can be accomplished; also apparatus devised to exercise the various muscles should be employed, or, when possible, the bicycle should be recommended. Deformities should be guarded against by appropriate apparatus. In the case of a child this should be made as light as possible, so as not to interfere with ordinary exercise. I have often seen appliances so heavy or inconvenient that they retarded rather than aided attempts at locomotion. Patience is required in this disease, and while we cannot usually hope to cure, we can accomplish much in cases of not too severe a type, which, if left to themselves, would rapidly pass into hopeless deformity. Certainly in chronic poliomyelitis

the above treatment faithfully followed out is often successful. Even in the degenerative and hereditary forms of paralysis this care is of benefit. In peripheral nerve lesions, as soon as the acute stage is passed, massage and electricity are of great value. I agree with many writers that probably the electricity has little if any influence in removing the disease in the nerve itself, but, as these diseases have a tendency to recovery, we are thus enabled to maintain the muscle in a good state of nutrition and prevent deformities, so that they are ready to respond to the nerve when the inflammatory process has subsided. The benefit of electricity in this disease cannot be denied, according to my experience; therefore, whatever its principle of action may be, it should be employed. I have not spoken of drugs in this connection, as my paper was not intended to take up that division of the subject. However, in all these forms of paralysis, with the exception of the cerebral type, strychnine is certainly of advantage.

DISCUSSION.

DR. E. B. ANGELL, of Rochester: It is of great value to both general practitioners and specialists to have these conditions carefully analyzed, as in the present paper. I regret that this term "paralysis" has to be used; but as long as we have patients with "creeping palsy" we are bound to use the term paralysis. I would rather speak of cerebral hemorrhage with paralysis than of cerebral paralysis.

Regarding the matter of spinal palsy, I should like to refer to the influence of infectious processes upon the production of spinal paralysis of the acute type. In such cases the prognosis is, fortunately, somewhat more favorable than is the case in the instances cited in the paper. The paper that was read by Dr. Putnam in Washington some years ago called attention to these infectious processes, and in many of these cases there is still some hope that with the reduction of the infectious process there will be more or less change, and in some cases complete recovery. I refer to infection with typhoid fever, influenza, diphtheria, etc.

Oftentimes it is a matter of importance to the family to know whether a patient who has been stricken with paralysis of cerebral hemorrhage is likely to get well or to die. Very few physicians, I find, make use of a test that has been suggested—*i. e.*, the use of the thermometer. Immediately after the onset of the paralysis from cerebral hemorrhage in grave cases there will be a subnormal temperature, and

in a few hours it will become normal, and then will run up to a little above the normal. If within four or five hours the temperature reaches 103° or 104° F., the prognosis is almost absolutely fatal; if, on the other hand, it reaches 102°, stays there for a time, and then begins to go down, however deep the unconsciousness, there is a fair chance for recovery. This is a point that can be determined by the physician if he takes the rectal temperature early. Surgery has shown that in some cases of palsy due to meningeal hemorrhage recovery can be brought about very readily. At the present time it is a crime on the part of any physician to be ignorant of the possibility of relieving these hemorrhages by operation, and not to understand the points which should lead to a correct diagnosis. In all cases of meningeal hemorrhage from injury, whether the latter fractures the cranium or simply causes so-called concussion, the meningeal artery being injured, there is always a period of consciousness after the injury, which is followed by a progressively deepening coma. That is the time to consult with one who is familiar with this class of cases, for the chances are very much in favor of relieving the condition by operation. Something like 60 or 70 per cent. of the operative cases have recovered, as against only 15 or 20 per cent. of the non-operative ones.

DR. WILLIAM C. KRAUSS, of Buffalo: I would like to ask Dr. Fisher what percentage of acute primary transverse myelitis he meets with. Another point that I think was not brought out clearly was: in cases of cerebral palsy in middle life we find that the paralyzed side is shorter than the other. This is not due to atrophy of the paralyzed side, but to a lack of development. The contour of the muscles and the shape of the limb are normal, but on comparison with the healthy limb a slight difference will be detected, due to tardy development of the paralyzed side.

DR. FISHER: My object was to give a simple classification of the various forms of paralysis met with, and, therefore, I classified them according to the site of the lesion and the character of the paralysis that must always follow. Dr. Angell has departed a little from my line in speaking of the treatment in cases of meningeal hemorrhage causing paralysis. That certainly should be relieved; the results are good, and the explanation is very simple. The motor tract of which I have spoken has not been injured; it has been simply compressed. If, however, the meningeal hemorrhage has been sufficient to break into the substance of the brain itself, and give us an intra-cerebral lesion, we then have the condition of permanent paralysis to which I referred. I agree that where the compressing lesion can be removed—where it is extra-cerebral, in other words—the chances of recovery are good. We have then not a paralysis due to an actual lesion, but

simply one which, for the time being, has interfered with the function of the part.

In answer to Dr. Krauss, I would say that my experience has been that acute transverse myelitis is rather rare. We have always in these cases the chronic stage coming on, and if the lesion has been severe enough to cause a destruction of these lateral tracts, we have, as I described, the secondary lateral sclerosis, which gives us our cerebral type of paralysis below the lesion. With regard to the cerebral palsy of children, the usual cause is either compression by forceps at birth, meningeal hemorrhage, or some inflammatory condition. There is an actual destruction of one side of the cerebrum, or an absence of development on that side of the cerebrum, leaving us, therefore, with the so-called type of cerebral paralysis, with rigidity, exaggerated reflexes, etc. Probably the cause of the lack of growth is to be found in disease. It differs entirely from absolute atrophy of the muscles in spinal paralysis—*anterior horn lesion*—and interference with growth of the bone; there is very little actual interference with growth, either of bone or muscle, as compared with the spinal type.

XXVIII. SOME OBSERVATIONS ON BRAIN ANATOMY AND BRAIN TUMORS.

By WILLIAM C. KRAUSS, M.D.,
BUFFALO, N. Y.

IN my study of the human brain, in the laboratory and at the bedside, two facts—one anatomical, the other clinical—have presented themselves with unusual force: first, the ease and facility with which the anatomy of the brain disappears from memory, and, secondly, the almost universal presence of optic neuritis in cases of brain tumor.

The first observation, I dare say, is not an original one, or one connected with the newer researches in neuro-anatomy, but has been common property of all those who ever conscientiously tried to master the anatomy of the brain.

One of the leading brain anatomists of Europe informed me that he was obliged to re-learn brain anatomy every time he gave the course to his students. My former teacher in anatomy used

to remind his classes that they would get brain anatomy twice—get it and forget it. It seems almost impossible for the memory to retain the countless names of the various divisions, subdivisions, and the multitudinous parts which go to make up the architecture of this most important organ. Much of this difficulty arises from the different terms applied by different writers to identical portions of the brain—synonyms; but this is about to disappear, as much progress has lately been achieved in neuronymy under the able leadership of Prof. Burt G. Wilder, of Cornell University.

This report¹ was adopted unanimously at the 1896 meeting of the American Neurological Society in Philadelphia, and will help to lessen some of the difficulties with which brain investigators have to contend.

“The first five sections are substantially identical with reports that were adopted unanimously by the Association of American Anatomists in 1889 and by the American Association for the Advancement of Science in 1890 and 1892. The recommendations are as follows:

“1. That the adjectives dorsal and ventral be employed in place of posterior and anterior as commonly used in human anatomy, and in place of upper and lower as sometimes used in comparative anatomy.

“2. That the cornua of the spinal cord and the spinal nerve-roots be designated as dorsal and ventral rather than as posterior and anterior.

“3. That the costiferous vertebræ be called thoracic rather than dorsal.

“4. That, other things being equal, mononyms (single-word terms) be preferred to polyonyms (terms consisting of two or more words).

“5. That the hippocampus minor be called calcar; the hippocampus major, hippocampus; the pons Varolii, pons; the insula Reilii, insula; pia mater and dura mater, respectively pia and dura.

“6. That the following be employed rather than their various synonyms: Hypophysis, epiphysis (for conarium and corpus pineale), chiasma, oblongata, lemniscus, monticulus, tegmentum, pulvinar, falx, tentorium, thalamus, callosum, striatum, dentatum, mesencephalon, pallium, oliva, clava, operculum, fissura centralis

¹ Journal of Nervous and Mental Disease, December, 1896, p. 793.

(for f. Rolando, etc.), f. calcarina, f. collateralis, f. hippocampi, cuneus, præcuneus, claustrum, fornix, infundibulum, vermis."

But even with the universal adoption of these terms, brain anatomy will seem just as complex and just as evasive as before, and any aid or rules which will lighten this burden will always prove welcome.

The following rules which I have formulated have been a great aid to me in remembering the gross anatomy of the brain, and may be of assistance and benefit to others.

Rule of "Two."

1. The nerve-centres are divided into two great divisions: (1) encephalon, (2) myelon.

2. The encephalon is divided into two subdivisions: (1) the cerebrum and (2) the cerebellum.

3. The cerebrum, cerebellum, and myelon are divided into two hemispheres each: the right and the left.

4. The encephalon is indented by two great fissures: the longitudinal and the transverse; the former between the two hemispheres, the latter between the cerebrum and cerebellum.

5. Into these two great fissures there dip two folds of the dura: (1) the falx cerebri, (2) the tentorium cerebelli.

6. There are two varieties of brain matter: (1) the white, (2) the gray.

Rule of "Three."

1. There are three layers of membranes surrounding the brain: (1) the dura, (2) the arachnoid, (3) the pia.

2. Each hemisphere is indented by three major fissures: (1) the sylvian, (2) Rolandic or central, and (3) parieto-occipital—these serving as boundary lines between the different lobes.

3. Three lobes—the frontal, temporal, and occipital—on their convex surface are divided into three convolutions each—the superior, middle, and inferior, or first, second, and third.

4. There are three pairs of basal ganglia: (1) the striata, (2) thalami, and (3) quadrigemina.

5. The hemispheres of the brain are connected by three commissures: (1) the anterior, (2) Middle, and (3) post commissure.

6. The cerebellum consists of three portions: (1) the right and (2) left hemispheres and (3) the vermis.

7. There are three pairs of cerebellar peduncles: (1) the superior, (2) middle, and (3) inferior, or the (1) *processus e cerebello ad testes*, (2) *ad pontem*, (3) *ad medullam*, connecting it with the rest of the encephalon.

8. The number of pairs of cranial nerves in the classifications of Willis and Sömmering can be determined by adding three to the number of letters in each name: that of Willis making nine and that of Sömmering making twelve. Or the name containing the more letters has the larger number of pairs of nerves, and *vice versa*.

The cortex of the cerebellum is divided into three layers of cells: (1) the granular layer, (2) Purkinje's cells, and (3) a molecular layer.

Rule of "Five."

1. Each hemisphere is divided externally into five lobes, of which four are *visible*—frontal, parietal, temporal, and occipital, and one *invisible*, the insula (isle of Reil); roughly speaking, the visible lobes correspond to the bones of the cranium—that is, the frontal lobe is underneath the frontal bone, the parietal lobe beneath the parietal bone, the temporal lobe beneath the temporal bone, and the occipital lobe beneath the occipital bone.

2. The brain contains five ventricles, of which four are *visible*, the right and left, or first and second, the third and the fourth, and one *invisible*, the fifth, or pseudo-ventricle, between the two layers of the septum lucida.

3. The cortex of the brain contains five distinct layers of ganglion cells.

RECAPITULATION.

Rule of "Two"	{	Nerve centres—	
		1. Encephalon. 2. Myelon.	
		Encephalon—	
		1. Cerebrum. 2. Cerebellum.	
		Cerebrum	} 1. Right hemisphere. 2. Left hemisphere.
		Cerebellum	
		Myelon	
		Fissures—	
		1. Longitudinal. 2. Transverse.	
		Dura—folds—	
		1. Falx. 2. Tentorium.	
		Brain matter—	
		1. White. 2. Gray.	

Rule of "Three"	Membranes—	1. Dura. 2. Arachnoid. 3. Pia.
	Hemispherical fissures—	1. Sylvian. 2. Central (Rolandic). 3. Parieto-occipital.
	1. Frontal	} 1. First. 2. Second. 3. Third. Or, 1. Superior. 2. Middle. 3. Superior convolutions.
	2. Temporal	
	3. Occipital lobes	
	Central ganglia, pairs—	1. Striata. 2. Thalami. 3. Quadrigemina.
	Cerebellum—	1. Right hemisphere. 2. Left hemisphere. 3. Vermis.
	Cerebellar peduncles, pairs—	1. Superior. 2. Middle. 3. Inferior.
	Cerebellar cortex, layers—	1. Granular. 2. Purkinje's. 3. Molecular.
	Cranial nerves, pairs—	
Rule of "Five"	W-i-l-l-i-s	plus 3 = 9
	S-u-m-m-e-r-i-n-g	plus 3 = 12
	Hemispherical lobes—	
	Visible: 1. Frontal. 2. Parietal. 3. Temporal. 4. Occipital.	
	Invisible: 5. Insula.	
Rule of "Five"	Ventricles—	
	Visible: 1. First. 2. Second. 3. Third. 4. Fourth.	
	Invisible: 5. Fifth (pseudo-ventricle).	
Rule of "Five"	Cerebral cortex—	
	Five layers of ganglion cells.	

II.

CHOKED DISK, OPTIC NEURITIS, OR PAPILLITIS.¹

Having noted the continual presence of this symptom in my cases of brain tumor, twelve times out of thirteen, and once probably present, I determined to ascertain, if possible, the class of cases in which choked disk was absent, or whether the nature of the growth, its location, size, or period of growth had any decided influence over the determination of a neuritis.

If choked disk depended upon an increased intra-cranial pressure, its absence would be looked for in tumors of small size and slow growth. If to microbic influences, then its absence would be noted in non-pathogenic neoplasms.

Another problem which I attempted to solve was whether the location of the tumor had any bearing upon the appearance of optic neuritis, as, for instance, as has been remarked by some observers, that pons tumors, or basal tumors, predispose less to optic

¹ In this paper the terms optic neuritis, choked disk, and papillitis are used synonymously.

neuritis than cortical tumors, or that cerebellar tumors are more often accompanied by choked disk than cerebral tumors.

Some of the other queries whose solutions were desired were as to whether unilateral choked disk determined the hemisphere in which the tumor was located ; whether the greater intensity of the neuritis in one eye indicated the side containing the tumor, and whether the early or late appearance of optic neuritis indicated anything in the nature, character, location, or period of growth of the tumor.

To study these different problems one hundred cases of brain tumor (cerebral) were selected from recent literature, in which an ophthalmoscopic examination had been made, and the presence or absence of choked disk, or optic neuritis, had been definitely determined. The symptoms, location of growth, and its nature were carefully tabulated, and the results obtained are, briefly, as follows :

Of these one hundred cases choked disk, or optic neuritis, was absent in nine cases and present in ninety-one, and as a symptom of brain tumor was second in frequency to the head pains. These figures are somewhat higher than those reported by other observers, as the following percentages will show : Gowers found optic neuritis present in 80 per cent. of his cases ; Oppenheim¹ in 82 per cent. ; Köster² in eight out of nine personal cases, or as frequently as the head pains ; Knapp, 66 $\frac{2}{3}$ per cent. ; Edmunds and Lawford, in an analysis of 107 cases of brain tumor, found it present in 68 cases.

In those cases where it was absent six were tumors in the motor areas, four on the left, and two on the right side ; two were tumors in the temporal lobe, and one was a tumor in the frontal lobe. This result would appear to favor the motor areas (ascending frontal and ascending parietal convolutions, or pre-central and post-central) as the region of the brain *least* favorable for the development of optic neuritis ; but on examining the ninety-one cases where optic neuritis was present, thirty three, or over one-third, were found to be tumors in the motor areas.

In eighteen cases of tumor of the frontal lobe optic neuritis was present, while it was absent in only one case.

In three cases of temporal lobe disease optic neuritis was present, while its absence was noted in only two cases. In pons tumors,

¹ Oppenheim : Die Geschwulste des Gehirns, 1896.

² Köster : Abstract, Neurologisches Centralblatt, 1897, No. 22.

where, according to some authors, optic neuritis is very prone to be absent or very late in making an appearance, it was present in eleven cases, and in no case was it reported absent.

In an analysis of one hundred cases of cerebellar disease reported to this Society in 1895,¹ optic neuritis was present in sixty-six cases, absent in twelve, and not reported in twenty-three. This would tend to show that it is more frequently met with in cerebral than in cerebellar tumors.

It is well known that cysts and abscesses of the brain predispose less to optic neuritis than tumors; thus in an analysis of fifty cases, optic neuritis was present in sixteen cases, absent in twenty-four, doubtful in two, and not mentioned in eight. In the majority of the cases where optic neuritis was present it appeared very late and was generally very slight.

The size, growth, and character of the tumor as bearing upon the increase of intra-cranial pressure in calling forth an optic neuritis is worth considering, and in the nine cases where optic neuritis was absent the following conditions were present.

Case 1² was a fibroma of slow growth, size not mentioned. Case 2 was a glioma of five years' growth, a small part of which was the size of a hickory-nut. Case 3 was a case of general tuberculosis of the brain, with distended ventricles. Case 4 was an infiltrating tumor, the size of an orange. Case 5 was a "cicatricial-looking mass," about one and one-half inches in diameter. Case 6 was a tumor, three and one-half by two and one-half by one and one-half inches in diameter. Case 7 was a small perithelioma. Case 8 was a spindle-celled sarcoma the size of an apple, and Case 9 was a tumor the size of a hen's egg, surrounded by an infiltrating glioma.

The size of the tumors, therefore, as shown by the autopsy findings, varied from a small perithelioma to a spindle-cell sarcoma the size of an apple (Case 8). Nearly all tumors were of large

¹ New York Medical Journal, June 1, 1895. Transactions New York State Medical Society, 1895.

² Case 1. Pel: Berliner klinische Wochenschrift, 1894, No. 5.

Case 2. Mills and McConnell: Journal of Nervous and Mental Disease, January, 1895.

Case 3. Finlayson: Glasgow Medical Journal, August, 1896.

Case 4. Sinkler: Trans. American Neurological Association, 1896.

Case 5. Church and Frank: American Journal of the Medical Sciences, July, 1890.

Case 6. Thomas and Bartlett: Hahnemannian Monthly, May, 1890.

Case 7. Ziehl and Roth: Deutsche medicinische Wochenschrift, 1897, No. 19.

Case 8. Schultz, Fr.: Deutsche Zeitschrift f. Nervenheilkunde, 1896.

Case 9. Pershing: Trans. American Neurological Association, 1897.

size, as in Cases 2, 9, 6, and 5, the smallest of this group (5) being one and one-half inches in diameter. In Case 3, although the sizes of the tubercular nodules are not mentioned, yet the lateral ventricles were enlarged and distended, increasing intra-cranial tension greatly thereby.

In the case of the fibroma (1) such a dense, firm, unyielding mass, however small its size, would also greatly increase the pressure. It would seem probable, therefore, if optic neuritis were totally absent in these cases up to the time of death, that some agent or process other than increased intra-cranial pressure were necessary to have produced choked disk or optic neuritis, because here was pressure, very pronounced even, and yet no neuritis, according to competent, careful observers, had been found. If the Leber-Deutschmann theory be accepted, then the neuritis is the result of some irritating agent from the tumor or inflammation finding its way into the cerebro-spinal fluid and, by the increased intra-cranial pressure, being forced into the sheaths of the optic nerves, producing œdema and a true optic neuritis. This is, perhaps, the best explanation of the origin of optic neuritis, and shows how the increased intra-cranial pressure is made to play an important part in the etiology of this important symptom. The period of growth varied considerably in these tumors between the first manifestations of the symptoms and the termination in death or operation. In Case 1 over a year elapsed; in Case 2, five years; in Case 3, a very short time; in Case 4, over seven years and fifty-four days after the operation; in Case 5 ten months elapsed before the operation; in Case 6 nearly two and one-half years transpired between first symptoms and operation; in Case 7 nine months elapsed; in Case 8 a trauma was received in 1893 and the patient was operated on in June, 1896; and in Case 9 over two years had elapsed.

It would seem, therefore, that slow-growing tumors, such as these all were, with the exception of Case 3, predisposed less to the occurrence of optic neuritis than those of rapid growth.

The nature of the tumors in these cases varied, and it is questionable whether any of them, with the exception of the tubercles in Case 3, can be considered of microbic origin. The sarcomata have as yet not been definitely placed among the parasitic tumors; hence their toxins were not able to produce a toxic neuritis. Out of the ninety-one cases eight were of tubercular and fifteen of syphilitic origin, while thirty-seven were sarcomatous and seven-

teen gliomatous. Here, again, it is impossible to derive any positive data regarding the relation between the tumor and the development of the neuritis. It is hardly probable, however, that the optic neuritis depends upon a specific virus emanating from specific tumors, thus producing a toxic neuritis. The "irritants" of Leber, Deutschmann, Adamkiewicz, and others, which are supposed to play such an important rôle, have not been as yet defined.

The data upon which to base an opinion regarding unilateral optic neuritis, the unequal intensity of the neuritis and its early or late appearance, as indicative of special location, were so meagre that nothing very positive can be affirmed. It is probable, however, that a unilateral neuritis and the neuritis of greater intensity stand in communication with the diseased hemisphere, or, in other words, that a neuritis will be found in the eye corresponding to the side of the brain affected.

A point not always stated in these negative cases was the number of times an ophthalmoscopic examination had been made, and also the length of time before death, or operation, of such examinations. In many of the cases analyzed optic neuritis was reported as occurring "very late" or "just before death," and some observers held the diagnosis of brain tumor in abeyance, because of the non-appearance, or, rather, tardy appearance of this symptom. Thus, in a case of my own, operation was postponed for some weeks, because of the normal appearance of the disks, and then undertaken on the sudden acute manifestation of the neuritis, and yet on autopsy the brain had evidently been the seat of disease (multiple sarcoma) for months.

It is possible, therefore, that an optic neuritis may be discovered in some cases reported as negative, if the ophthalmoscope were used daily and up to the time of dissolution. Sanger¹ reported a case to the Hamburg Medical Society, where the absence of optic neuritis and a previous history of syphilis led him to the belief that a syphilitic basilar meningitis was present. A day or two before the patient's unexpected sudden death a light degree of optic neuritis appeared; the autopsy revealed a sarcoma of the right occipital lobe penetrating the cerebellum. In all suspected brain cases the fundus of the eye should be examined repeatedly, if not daily, for the appearance of a papillitis, as its presence is almost pathognomonic of cerebral neoplasm, and may aid definitely in

¹ Neurologisches Centralblatt, 1896, p. 428.

differentiating between the diagnosis of functional brain disturbance and organic brain disease.

Despite the fact that optic neuritis was absent in three cases, the other symptoms were so prominent, especially localizing symptoms, as paresis (eight out of nine cases), that an operation was resorted to in Cases 1, 4, 5, 6, 7, and 8. Death occurred in all cases, except 5 and 7, from a few hours to fifty-four days (Case 3) after the operation.

While the sex of these patients did not exert any influence over the production of optic neuritis, yet it may be interesting to know that five were males and three females; the sex of one patient, a child of nineteen months was not stated. The ages varied from nineteen months (Case 3) to sixty years (Case 7), and in this case a second operation was performed and the patient recovered.

The importance of trauma in the production of brain tumors should not be lost sight of, and seemingly exerts considerable influence, as three of these cases ascribe the beginning of their affliction to some blow on the head.

In the ninety-one cases a large number gave similar evidence, and in one case¹ the symptoms gradually followed the boxing of a pupil's ears by a brutal school-teacher. Another similar case was reported by Donath,² of an apprentice who was struck on the side of his head by his master, and an extensive sarcomatous disease of the cerebellum was disclosed at the autopsy.

The conclusions to be drawn from my study of these cases are as follows:

1. Optic neuritis is present in about 90 per cent. of all cases of brain tumor.
2. It is more often present in cerebral than cerebellar cases.
3. The location of the tumor exerts little influence over the appearance of the papillitis.
4. The size and nature of the tumor exert but little influence over the production of the papillitis.
5. Tumors of slow growth are less inclined to be accompanied with optic neuritis than those of rapid growth.
6. It is probable that unilateral choked disk is indicative of disease in the hemisphere corresponding to the eye involved.
7. It is doubtful whether increased intra-cranial pressure is solely and alone responsible for the production of an optic neuritis in cases of brain tumor.

¹ Hofman: *Virchow's Archiv*, vol. cxlvi.

² *Wiener med. Wochenschrift*, 1896, Nos. 29 and 30.

XXIX. A CONTRIBUTION TO THE STUDY OF MELANCHOLIA,
WITH A TABLE SHOWING THE RESULTS OF AN
EXAMINATION OF THE BLOOD IN
FIFTY-SEVEN CASES.

BY B. C. LOVELAND, M.D.,

CLIFTON SPRINGS.

IN a recent number of the *Journal of Nervous and Mental Disease* there was published an article by Dr. S. Weir Mitchell, entitled "An Analysis of Three Thousand Cases of Melancholia."

In the presence of statistics so extensive, of this form of mental disease, it would seem that an analysis of fifty-seven cases should be begun with an apology, and it would be so were it not for the fact that the line of investigation reported here has only recently received attention, and the period in the disease which this paper covers is one in which it has received little or no study, for reasons which will be obvious when it is stated that this report comprises the examinations of the blood in cases which were nearly all in the earlier manifestations of the trouble, while those usually made the subjects of statistical study are from the chronic and advanced patients who have already found their way into the various asylums and hospitals for mental disease.

Let us look at one or two of these poor sufferers. A woman, about middle age, with muddy complexion (nothing will describe it better), thin, wrinkled skin, with an appearance of age much beyond her years; a look of stolid indifference, or more likely a look of hopelessness and perfect abandon.

The patient will not talk unless forced to do so in answer to questions, and then will answer in the shortest possible way, using monosyllables, or entirely refusing to answer questions regarding her health. Possibly the patient has been a religious woman, whose good works have made "many rise up and call her blessed;" but we will find that in her own estimation she is not worthy to associate with good people, and feels that she is so wicked that she has no hope in this life or in the future; in fact, has committed the unpardonable sin. She will sit by the hour, absorbed in her

own miserable thoughts, and nothing that can be done or said will be able to divert her from her wretchedness.

She may be in comfortable circumstances, but she only sees the poorhouse before her; and, besides, to make her misery complete, she may have delusions of swift retribution coming in punishment for imaginary crimes.

She may sit by the hour where placed, seeming to have no power for automatic movements, or, on the other hand, she may walk with a restlessness which will keep her going almost all the time, even far beyond her strength.

Occasionally, too, we will find our patient not so uncommunicative; in fact, she talks almost incessantly when she can get anybody to listen, and even talks over her troubles to herself when no one is paying attention.

She may court death, as is the case with suicidal ones, or, on the other hand, she may wish to die, but be so taken up with the fear of death that she is practically not dangerous to herself, and may even be filled with fear lest some one will do her damage.

One other class of cases needs a word here: that is, a sort of intermittent melancholia, well illustrated by Case XXXV. in the accompanying table. He was a man, aged sixty-nine years, who had been in an asylum for eighteen months for melancholia with suicidal tendencies some twenty years previous to the attack for which he consulted me. After that time he was well for years, and carried on a successful business, and even when he was brought to me he said he had no reason for depression from business or other stand-points.

When asked what his trouble was, he replied promptly, "I am suffering with melancholia with suicidal tendencies." When, in reply to this, I asked, "You do not seriously contemplate taking your life, do you?" His answer was, "No, not to-night, or I should not have come to you; but to-morrow morning at four o'clock I shall want to take my life, I am sure, and if there was any convenient way open then, I am sure I should do it." His physique was rather robust, though he had recently lost some flesh. His urine was scant and acid, often having a deposit of uric acid. Digestion and appetite were good, but sleep was poor. It was after his restless nights, when waking early in the morning, that his most depressed spells would come. His blood showed, as

will be seen in the table, hæmoglobin, 95 per cent. by the Fleischl machine, and red corpuscles counted 7,040,000 per c.mm. After three or four weeks' treatment, which consisted mainly of a vegetable diet and the drinking of three and one-half to four quarts of water daily, his blood had reduced to normal average, or hæmoglobin 85 per cent, red corpuscles 5,500,000, and with this change had come such a change in his feelings that he went home, coming occasionally to see me, and in good spirits, for a year or more. After another year had passed he suffered a relapse at his home, during which relapse he committed suicide.

I have not attempted a full classification of the various melancholias, as that is not within the scope of this paper, but simply to review some of the most prominent symptoms and most frequent forms of the disorder.

Every one who is at all familiar with the subject will easily recall the very scant and high-colored urine that is characteristic of melancholia.

It is usually free from signs of organic disease, is high in specific gravity, small in quantity, often not exceeding one-half or less the normal amount in twenty-four hours, is of a color like tea or coffee, and contains an increased proportion of all the solid or soluble ingredients.

This concentration of the urine is, I think, only significant of a similar concentration of all the fluids of the body.

So far as the concentration of the blood, the source of all the fluids of the body, is concerned, a summary of the subjoined report will be instructive.

Highest hæmoglobin estimation, 135 per cent. Gower, or 120 per cent. Fleischl.

Lowest hæmoglobin estimation, 90 per cent. Gower, or 75 per cent. Fleischl.

The difference in the estimation by the Gower and Fleischl hæmoglobinometers is deserving of note, as some investigators use one and some the other, and there is a constant difference of 15 per cent. in the reading. A specimen of blood in which the corpuscle count is about 5,000,000 would show 100 on the Gower instrument and about 85 per cent. on the Fleischl instrument.

Highest number of red corpuscles per c.mm., 8,760,000.

Lowest number of red corpuscles per c.mm., 4,320,000.

The lowest hæmoglobin estimation was in a case where the melancholia was incident to a chronic interstitial nephritis, and should not be regarded as at all characteristic of melancholia.

The lowest number of red corpuscles was in a case of mild melancholia of a very chronic nature, which had been about the same for nearly two years, and was then nearly recovered.

I am aware that these results do not fully accord with the results of similar work done in some of our State hospitals for the insane, but these examinations were made at a period in the disorder much earlier than is possible in the State hospitals and other asylums, and may be explained by a study of nature's method of cure in these cases.

Let us begin the study of melancholia where the case first differs from health. Slight depression coming on without any known cause, and gradually increasing, or coming on more rapidly when the patient has been in perfect health so far as he knows, and brought on apparently by a cause which is entirely insufficient to produce the result in other men.

The first treatment such a patient gets is usually a jollying up by his friends, good enough in its way, perhaps a vacation, and if this does not prove efficacious the patient next has to go through a period in which he is called a crank, scolded, and told that he could shake off the depression if he would only do this or that, and is considered a case of obstinacy or sulks.

As the case progresses the patient becomes more disinterested in his usual occupation, more depressed, and adds to his distress the feeling that he is too wicked to deserve food, and hence stops eating. For a long time he has lost all appetite, and ceased mainly from taking such exercise as would promote a healthy digestion and assimilation. His flesh has dwindled away, his skin become brown, and in fact he has come to conform to the description in the first part of this paper. He is now, if not before, sent to some asylum, for his disease has gone so far that he has become a menace to himself.

He has taken tonics and medicines galore, but his once strong physique has wasted to a shadow of its former self. In endeavoring to sustain mere animal life nature has used nearly every available ounce of tissue. He has drunk little fluid, but this little is more than he has eaten, and with his wasting has come a thinning

of the blood, and, to a large extent, a clearing of his system of the surplus of worn-out material which has been poisoning his brain.

With no medicine and no treatment, some of these cases at this point begin to improve, sleep better, eat better, take more exercise, and more interest in things—in fact, retrace their steps until they have returned to the flesh and health they once had. All observers agree that a large proportion of the asylum cases recover, and, I think, the main feature in the treatment in such institutions is the *feeding*, sometimes forced, with liquid food.

The only study of the blood in melancholia to which I have had access is one by Dr. Whitmore Steele, in the *American Journal of Insanity*, and the conclusion is reached from a study of thirty-five cases that he regards all persons suffering from this disorder to be deficient in both hæmoglobin and hæmocytes, and advises as the most effective treatment either iron alone or in combination with quinine and strychnine. He also notes something else, with which I can quite fully agree—that is, that “improvement in the mental symptoms is coincident with improvement in the general health.”

In the accompanying study of the blood in fifty-seven cases of melancholia it would appear that the blood was neither deficient in hæmoglobin nor in hæmocytes at the initial or early stage of the disorder, but, on the contrary, was always found to be above the average in these particulars; that after the loss of appetite, always present, and the frequent entire refusal to take food, and the impaired digestive power associated with such a mental condition, the blood first loses its richness in coloring matter and later in the corpuscular elements.

During this time, of course, nature is using up all available nutrient material, and is also gradually excreting the effete materials which, we are led to believe, have been retained in the system, until the blood, which was rich in nutrient material and even richer in excrementitious substances, is purged of its surplus in both directions.

It is a circumstance worthy of note that, while many people with thick blood are melancholy, as this report shows, I have never chanced to see any real signs of melancholia in the profoundly anæmic cases which have come under my care.

This starving and purging of the blood may go on until the blood has become below the normal average in nutrient elements

before the excrement, which is poisoning the system, is so far eliminated that the nervous system can be freed from the intoxicating effect of this poison. At this point the forced fluid diet is most advantageous, as it supplies both nourishment and fluid for purposes of elimination.

This is the best explanation of the facts that have come under my notice, which would otherwise seem contradictory, and leads up to what I wish to offer, not as a new theory of the causation of the trouble under consideration, but as contributory evidence from another source in support of the theory and a suggestion as to the rational treatment of this trouble in its first stages, by paying more attention to the *elimination* and less to the administration of either tonics, stimulants, or sedatives, all of which may be good in their way, and even necessary at times, but which at the best are only adding more poison to an already poisoned system.

The rational treatment indicated in these cases would be to take a careful inventory of the patient's condition, including an examination of the blood and urine, as well as the usual physical examination.

Then promote elimination by every possible avenue, bowels, kidneys, and skin, not forgetting that *water* is "nature's solvent," and the most powerful aid in cleansing the system, and exercise its strongest ally.

Next, feed the patient such a variety and quantity of food as the examinations already made indicate as the requirement of the body, remembering that a careless prescription of food in these cases is as harmful as a careless prescription of medicines, and either too much or too little or a quality unsuited to the patient may do harm.

Lastly, give such medicines as may be needed to secure proper sleep and the necessary elimination which the dietary and hygienic methods noted seem inefficient in securing.

The results of treatment of such cases as were under observation long enough to make any satisfactory report were sufficiently good to commend the method indicated, and may be summed up as follows: 45 only of the 57 here enumerated stayed under observation for a prolonged period, and of that number 35 recovered, 8 were improved, and 2 only were unimproved. The longest period during which any patient was under treatment was about seven months.

TABLE OF MELANCHOLIA CASES, WITH BLOOD EXAMINATIONS, 1893-97.

"G." indicates that the Gower hæmoglobinometer was used, and "F." that the Fieschl hæmoglobinometer was used in making the tests thus marked.

No.	Name.	Date.	Hæmo- globin.	Red blood corpuscles per c.mm.	Remarks.
			per ct.		
1	Miss V. L.	Jan. 21, 1893	116 G.	5,920,000	Recovered; no further examination.
2	Mrs. D.	July 8, 1893	118 G.	6,440,000	Recovered and returned home.
		July 27, 1893	105 G.	5,480,000	
3	Mrs. W.	Jan. 15, 1894	116 G.	6,440,000	Consultation; result unknown.
4	Miss A. P.	Feb. 22, 1894	116 G.	5,720,000	Recovery; no further examination.
5	Mrs. F.	Mar. 29, 1894	116 G.	6,100,000	Soon went from observation.
6	Miss E. W.	Apr. 19, 1894	115 G.	5,160,000	Greatly improved; went home. Recovery; no further examination. Recovery; no further examination. Acute conditions required sending her to an asylum. Recovered.
		June 23, 1894	108 G.	4,460,000	
		Nov. 5, 1894	100 G.	5,340,000	
		Apr. 17, 1894	120 G.	6,440,000	
7	Mrs. F. V.	Apr. 17, 1894	120 G.	6,440,000	Recovery; no further examination.
8	Miss E. M.	Aug. 1, 1894	125 G.	6,000,000	
9	Mrs. J. A.	Oct. 22, 1894	110 G.	5,620,000	Acute conditions required sending her to an asylum. Recovered.
10	Miss R.	Oct. 25, 1894	112 G.	7,100,000	Consultation; chronic case.
11	Dr. A.	Nov. 6, 1894	105 G.	5,320,000	Had practically recovered when examined. Consultation.
12	Miss V. L.	Nov. 22, 1894	105 G.	4,560,000	Case 1. Relapsed; recovered.
13	Rev. W. D.	Nov. 23, 1894	110 F.	5,540,000	Improved considerably, then went out of my immediate supervision, family refusing to take to an asylum. Suicided October, 1895.
		Feb. 1, 1895	105 F.	5,920,000	Marked gouty case; improved. Left February 2d, returning on March 5th; improved, but no further examination was made. Note difference in Gower and Fieschl.
		Mar. 2, 1895	100 F.	5,780,000	
14	Miss V. K.	Dec. 3, 1894	106 G.	6,760,000	Left February 2d, returning on March 5th; improved, but no further examination was made. Note difference in Gower and Fieschl.
15	Miss E. C.	Dec. 16, 1894	100 F.	5,960,000	
		Feb. 2, 1895	100 F.	5,420,000	
	Returned	Mar. 6, 1895	120 G.	6,440,000	
			105 F.	6,440,000	
16	Mr. A. R.	Jan. 12, 1895	135 G.	7,220,000	Recovered; no relapse since.
		Feb. 23, 1895	100 F.	5,940,000	
		Mar. 29, 1895	90 F.	5,960,000	
17	Mr. P. K.	Feb. 20, 1895	125 G.	5,780,000	Recovered.
			110 F.	5,780,000	
18	Mr. A. G.	Mar. 8, 1895	110 G.	5,880,000	Improved; ultimate recovery.
			95 F.		
19	Miss M. S.	Mar. 21, 1895	120 G.	5,020,000	Recovery.
			105 F.	6,820,000	
20	Mrs. E. W. R.	Apr. 1, 1895	100 F.	6,080,000	Improved, and ultimately recovered.
		Apr. 18, 1895	85 F.	4,660,000	
21	Miss L. H.	Apr. 11, 1895	80 F.	6,140,000	Chronic; left soon; consultation.
22	Mrs. J. S.	Apr. 26, 1895	100 F.	6,760,000	Grew worse; sent to asylum.
23	Mr. J. W. W.	May 11, 1895	95 F.	4,800,000	Recovered; well at present.
		June 17, 1895	85 F.	5,600,000	
24	Miss A. C.	May 13, 1895	85 F.	6,760,000	Recovery; no further examination.
25	Miss E.	July 5, 1895	100 F.	6,320,000	Consultation; result unknown.
26	Mr. W. M.	Sept. 20, 1895	100 F.	6,640,000	Recovery.
		Oct. 14, 1895	90 F.	5,780,000	
27	Mrs. C. E.	Sept. 27, 1895	100 F.	6,020,000	Chronic case.
		Jan. 11, 1896	87 F.	6,260,000	Recovered.
28	Mrs. H. F.	Oct. 5, 1895	90 F.	6,920,000	Chronic case with delusions.
		Mar. 17, 1896	90 F.	6,920,000	Went home improved, and ultimately recovered.
29	Miss M. G.	Oct. 5, 1895	90 F.	6,880,000	Chronic case; agitated type.
		Dec. 26, 1895	85 F.	4,760,000	Improved and went home.
30	Mr. K. D.	Oct. 26, 1895	95 F.	6,280,000	Was improving at this time.
		Mar. 26, 1896	95 F.	6,260,000	Left much improved.
31	Mr. C. H. H.	Oct. 29, 1895	75 F.	6,520,000	Chronic Bright's case; no improvement.
		Dec. 19, 1895	86 F.		Died from cerebral hemorrhage January 16, 1896.
32	Mr. J. C. D.	Nov. 30, 1895	87 F.	6,760,000	Was improving at this time, and continued till he recovered.
33	Mrs. W. N.	Dec. 3, 1895	90 F.	7,820,000	Menopause; night vigils.
		Jan. 10, 1896	88 F.	7,140,000	Recovered.
		Feb. 1, 1896	86 F.	5,030,000	
34	Mr. W. B. D.	Dec. 5, 1895	100 F.	7,740,000	Rapid improvement.
		Jan. 6, 1896	90 F.	6,700,000	Went home; is still well.
35	Mr. W. K.	Dec. 17, 1895	95 F.	7,040,000	Suicidal, relapsing type.
		Jan. 10, 1896	80 F.	5,500,000	Improved; went home; after more than a year, relapsed, and suicided in 1897.

No.	Name.	Date.	Hæmo- globin.	Red blood corpuscles per c.mm.	Remarks.
			per ct.		
36	Mr. S. W.	Dec. 17, 1895	100 F.	7,660,000	Developed on a neurasthenia; im- proved; went away, but remained still neurasthenic.
		Jan. 22, 1896	90 F.	6,580,000	
		Apr. 2, 1896	90 F.	5,680,000	
37	Mrs. L. W.	Dec. 19, 1895	85 F.	5,180,000	Attempted suicide; recovered. No fur- ther examination.
38	Mr. W. M.	Dec. 30, 1895	85 F.	5,660,000	Chronic, specific history; improved. No further examination.
39	Mr. S. H.	Jan. 1, 1896	95 F.	6,120,000	Sent to an asylum.
40	Miss B. C.	Jan. 13, 1896	83 F.	6,020,000	Recovered.
41	Miss A. C. S.	Jan. 21, 1896	93 F.	5,820,000	Chronic; recovered.
42	Mr. R. M.	Feb. 9, 1896	118 G. 107 G.	6,480,000	
		Mar. 11, 1896	92 F.	5,250,000	Recovered.
43	Mr. W. F.	Feb. 17, 1896	128 G.	8,760,000	Suicidal.
		Mar. 18, 1896	120 G.	6,780,000	Sent to an asylum.
44	Mr. A.	Feb. 20, 1896	120 F.	7,520,000	
		Mar. 19, 1896	85 F.	5,100,000	Recovered.
45	Mr. J. S.	Feb. 21, 1896	128 G.	8,600,000	Consultation.
46	Mrs. H. R. B.	Mar. 4, 1896	100 F.	5,780,000	
		July 3, 1896	80 F.	4,920,000	Recovered, and is still well.
47	Rev. Dr. F.	Mar. 16, 1896	118 G.	5,740,000	Consultation.
48	Mrs. S. A.	Aug. 3, 1896	85 F.	6,000,000	
		Oct. 17, 1896	85 F.	5,440,000	Improved.
49	Mr. S. A. L.	Sept. 12, 1896	90 F.	5,200,000	
		Oct. 12, 1896	90 F.	5,600,000	} Left improved; returned with relapse; recovered.
		May 26, 1897	100 F.	5,600,000	
50	Mr. W. C.	Mar. 15, 1897	106 F.	6,240,000	
		Apr. 29, 1897	95 F.	5,760,000	Recovered.
51	Miss M. D.	Mar. 17, 1897	80 F.	6,000,000	Chronic; came to me from an asylum, weight 86 lbs.; left recovered, weigh- ing 117 lbs.
52	Mrs. B.	Mar. 20, 1897	95 F.	5,600,000	Melancholia, with delusions; recovered.
53	Mrs. R. A. K.	May 8, 1897	80 F.	4,320,000	Mild, chronic; recovered.
54	Miss E. B.	June 1, 1897	92 F.	5,280,000	Suicidal; sent to an asylum.
55	Mr. W. B.	June 4, 1897	105 F.	6,240,000	Early stage.
		July 2, 1897	95 F.	5,500,000	Recovered.
56	Rev. P. K. H.	July 9, 1897	100 F.	5,920,000	Recovered; no further examination.
57	Mrs. B. J. W.	Nov. 26, 1897	100 F.	Would not submit to further examina- tion at this time.
		Dec. 7, 1897	95 F.	5,440,000	Improved.

A single case, No. XLVI. in the table accompanying this report, will serve as an illustration. Mrs. H. R. B., a widow, aged fifty-two years, came under my care on March 4, 1896. She was not very thin, though she had lost some flesh since she began to run down. Diagnosis was confirmed by a noted specialist. Melancholia began a year before she was sent to me. General characteristics conform to the description in the early part of this paper. Blood examination at the time of admission: Hæmoglobin, 100 per cent. (Fleischl); red corpuscles, 5,780,000 per c.mm.

Treatment directed was: a diet mainly of milk and vegetable food, and phosphate of soda, gr. xv., in glass of hot water before each regular meal-time, and two quarts of water to be drunk during each day. Improvement was gradual but continuous till she was quite recovered, and went home on July 5, 1896. At that time her blood-examination showed as follows: Hæmoglobin, 80 per cent. (Fleischl); red corpuscles, 4,920,000 per c.mm. She came

to see me in May, 1897, to show me how well she was, and up to the present reports still come of her continued good health.

This case, though briefly described, seems a fair sample of what I wish to bring out, both as to conditions and the method of rectifying these conditions.

DISCUSSION.

DR. S. A. RUSSELL, of Poughkeepsie: I am particularly impressed with what the author has said about the great value of food and proper hygiene. I would ascribe most of the improvement in his cases to the careful selection of the food. The probability is that in most of these cases the patients were given an excess of food when considered with reference to the exercise taken. The same improvement might be observed in other persons if the same attention were given to the food.

DR. L. DUNCAN BULKLEY, of New York: The gentleman in reading the paper made a very striking remark, which I think should be still further impressed upon the Society, namely, "the taking of an *inventory* of the patient in all respects." In chronic disease, of whatever kind, we are prone to give too little attention to these details. The successful man takes a perfect inventory; the other confines his attention to a few things. The great trouble with specialists has been that they have not kept up their powers of observation in all branches sufficiently.

I see a great deal of melancholia, and I feel that my duty is not done to them, when they come to me for local disease, until I have found out the condition of the patient in every particular. I consider that the person who simply treats the local condition does not do his whole duty. I was called to Hartford some time ago to see a case in the Retreat there; afterward the patient came under my care. The patient was a young man, suffering from deep melancholia. He was passing a very small quantity of urine. With proper attention to elimination and other matters, in addition to the treatment of his skin disease, his mental condition changed entirely, and it seemed as though the clouds had been lifted from him. For these reasons it seems to me very important that the Society should pay more attention to this taking of the "inventory," no matter what the disease for which the patient seeks relief or advice.

DR. EDWARD D. FISHER, of New York: I would simply like to speak in commendation of the thorough investigation of the class of cases which form the basis of the paper. I agree with the last speaker

that this is one of the essentials of successful treatment. Regarding the feeding of these patients, I would say that, whether melancholia or any other form of mental disease, I believe in *excessive* feeding, proper attention, of course, being given to elimination. Most of these cases have a continuous waste, and it is the over-feeding rather than the under-feeding which leads to a successful issue. We notice in most cases of acute melancholia a wasting and loss of weight, and when our patient passes that period and begins to gain in weight, the improvement in the mental condition begins. Therefore, my first advice is, stimulation, together with the use of proper drugs, and excessive feeding.

XXX. ANÆMIA.

By R. C. M. PAGE, M.D.,
NEW YORK.

ANÆMIA may be regarded as a condition that is secondary to some other cause, rather than as a primary disease. The term itself is somewhat ambiguous, and is not infrequently used regardless of the real state. For this reason let us assume at the outset that anæmia signifies deficiency of red corpuscles, or aglobulism. Then let us include under this head all such forms as hydræmia, spanæmia, and the like. When, however, there is increase of white corpuscles as well as deficiency of the red, it is no longer simple anæmia, but leukæmia.

The latter condition, as is well known, is always associated with enlargement of the spleen due to hypertrophy of that organ, in which there is increase in the elements composing the normal splenic pulp. This disease is also called leucocythæmia, and in all cases observed by me it occurred in men from tropical or semi-tropical climates, and who had been subject to repeated attacks of intermittent fever.

In Hodgkin's disease, or lymphadenoma, the spleen is also enlarged, but this is due to two causes. First, and most commonly, the increase in size of the organ is caused by adventitious growths in its substance, resembling mutton suet when cut into. In these there is anæmia simply. But in exceptional cases the spleen is enlarged partly by hypertrophy of its normal elements and partly by the presence of adventitious growths. When this obtains we

find not only anæmia but leukæmia also, as was observed in a case sent to me last year by Dr. W. N. Hubbard, of the Bellevue outdoor department. This disease is characterized not only by the increase in the size of the spleen, but also by widespread enlargement of the lymphatic glands, beginning usually in the neck, and extending into the axillary region, groin, and elsewhere. I believe also, that, clinically, it may be regarded as malignant.

Chlorosis is used indiscriminately by most physicians and many authors to express the anæmic condition, regardless of age or sex. I believe, however, with Dr. T. Gaillard Thomas, that it should be restricted to young girls and only those who have not menstruated. It is true that such girls are usually anæmic, but not necessarily so. Once established, the menstrual function and the chlorosis, or "green sickness," as it really signifies, disappears.

Pernicious anæmia is a progressive disease first so named by Biermer in 1871. Here we have simply diminution of red corpuscles, many of which also become deformed (poikilocytes), without increase of the white, nor is there enlargement of the spleen. I have seen many more cases in the hospitals in Europe than in this country, and nearly always among women, especially from twenty to forty years of age, after repeated pregnancies. Chronic wasting diseases and certain uterine disorders may also lead to it, but in some cases there appears to be no known cause. As in all cases of marked anæmia, there are the usual basic systolic heart-murmurs and venous hum in the neck. A valuable point in the diagnosis, as suggested by Dr. W. H. Thomson, is the presence of fever. The temperature varies from 100° F. to 101° F. The patient gradually declines, but death is generally due to some intercurrent disease, notably tubular nephritis accompanied by marked dropsy. The pathology of pernicious anæmia is not exactly known, but on account of capillary hemorrhages in the retina and other localities, one is led to suspect some derangement of the sympathetic system of nerves, with consequent vasomotor disturbance. The disease is uniformly fatal, so that nothing more can be done than to attempt to prolong the patient's life by stimulants and highly nutritious food.

Having very briefly alluded to leukæmia, lymphadenoma, chlorosis, and pernicious anæmia, let us now consider the chief subject for discussion, simple anæmia. As already said at the outset, it may be regarded as a secondary rather than a primary disease. It

is, however, termed idiopathic anæmia by some as well as simple or ordinary anæmia. Perhaps insufficient food and overwork, especially when accompanied by bad hygienic surroundings, form the most frequent combination of circumstances that give rise to it. We also find it due to excessive loss of blood from any cause, and during convalescence from severe sickness, as typhoid fever and the like. But there is one way in which anæmia is brought about to which I especially wish to call your attention, as first observed by Meinert, of Dresden, a few years ago. It is due to increased functional activity of the spleen from vasomotor disturbances of the nutrient vessels of that organ, caused by prolapse of the stomach (gastroptosis) and bowels (enteroptosis). We find this condition chiefly among women with lax abdominal walls, such as those who have borne children, and also those who, in following the prevailing fashion, wear clothing that presses down the stomach as well as the liver. We all know how common is what Strümpell calls the corset-liver. In prolapse of the stomach and bowels the spleen is held firmly in position by the suspensory ligament. This allows traction on the splenic plexus formed by branches from the right semilunar ganglion of the sympathetic nervous system. It accompanies the splenic artery and its branches into the substance of the spleen. This traction on the splenic sympathetic nerve causes irritation with consequent vasomotor disturbance of the nutrient vessels of the spleen, with increased activity of that organ as seen in the heart in exophthalmic goitre. In the latter disease the heart is stimulated to increased action due to irritation of the sympathetic cervical ganglia, with consequent vasomotor dilatation of the coronary arteries.

With increased functional activity of the spleen there is generally some enlargement of that organ, and an increase in the number of white corpuscles of the blood without noticeable diminution of the red. The case could not, therefore, be called one of leukæmia, but simple anæmia. I have reason to believe this condition of the spleen in simple anæmia exists much more frequently than is generally supposed. After treating a case of simple anæmia for a length of time by ordinary methods, I have been astonished at the want of improvement in the patient's condition. On examination I have invariably found slight enlargement of the spleen, and they almost invariably occur among women. Cases of great enlargement of the spleen are not meant here. But I regard that organ

sufficiently enlarged to need attention whenever it gives rise to a *marked* dulness on percussion over the axillary line from the ninth to the eleventh ribs while the subject is in the erect position. In fact, it is a good rule when treating a case of anæmia to always begin by carefully examining the condition of the spleen.

Should the patient's improvement be slow, and enlargement of the spleen be suspected, various remedies have been suggested with the view of lessening its size. To this end, while sufficient food of a highly nutritious order is indicated, excess is to be avoided, as well as malarious localities. Ill-fitting dress should be remedied. As for drugs, I have found internal administration of iodide of potassium with arsenic and an occasional positive dose of quinine to be the best, along with some preparation of iron, of course. Added to this the surface over the spleen should be rubbed every other night, on going to bed, with the iodide of mercury ointment of the strength of about two grains to the ounce. Red oxide of mercury ointment may be used instead.

While administering iron the bowels should be regulated by some simple remedy, if necessary, as its action will then be much more satisfactory. It is also well to remember that it is often a good rule to stop all such medication during menstruation.

XXXI.—ON THE VAGARIES AND WANDERINGS OF GALL-STONES, WITH CLINICAL REPORTS.

By HENRY L. ELSNER, M.D.,
SYRACUSE.

THE vagaries and wanderings of gallstones, as exemplified in the cases which I am about to report, have seemed to me to be of sufficient interest to merit your attention at this time. The fact has been conclusively proved by clinical and post-mortem experiences that in a large number of cases where gallstones are ultimately found their presence was originally unsuspected.

The diagnosis of cholelithiasis is oftentimes made with great difficulty, for there are so many conditions which simulate the presence of gallstones that the diagnostician is too often puzzled in his differentiation. The various symptom-complexes associated with

paroxysmal pain in the upper abdominal regions, many of the so-called gastralgias and enteralgias, when correctly interpreted, often prove to be atypical cases of cholelithiasis. The prompt acceptance of the truth of this statement promises, if acted upon by the diagnostician, to bring relief and cure to many, a conclusion justified by the brilliant results recently obtained in the field of hepatic and biliary surgery. This hope for the future is accentuated by the exhaustive studies and the growing literature on this subject, to which I will refer later.

CASE I. Repeated gallstone colic, ultimate tumor simulating cancer of stomach, persisting fifteen months; disappearance of tumor; intestinal obstruction; final passage of enormous gallstone; gall-bladder duodenal fistula, passage of second large gallstone eleven months after the first, without colic or symptoms of obstruction; cure.—On March 20, 1895, Mrs. F., aged fifty-seven years, the mother of three children, consulted me for repeated acute pains which she referred to the upper abdominal regions. She was a woman who had always been obliged to work hard, and had been actively engaged in her household duties since her marriage. Careful inquiry into her history revealed the fact that she had suffered from repeated attacks of gallstone colic.

These were followed by great tenderness in the right hypochondriac region and a moderate amount of jaundice. The diagnosis of cholelithiasis had never been made, hence gallstones had not been looked for in the stools. Between her attacks of gallstone colic and after her recovery from the acute symptoms, she suffered continuously from indigestion, both gastric and intestinal.

On March 25th, after a severe and characteristic attack of colic, several small faceted calculi were found in the stool. The usual symptoms already mentioned followed this attack, but the patient appeared more tired and weaker than ever before. From March 25, 1895, until July 1st, of the same year, with progressive emaciation and anorexia, she had repeated attacks of severe biliary pain, after none of which did careful search show the presence of gallstones in the stools.

The tenderness over the right half of the epigastrium and right hypochondrium was constantly present. The patient became more emaciated, vomited a great deal, suffered from almost continuous pain in the region of the stomach and liver, and on July 5th a hard swelling about the size of a hazelnut was palpable near the border of the epigastric and right hypochondriac regions. This was tender, and seemed to be slightly movable. Examination of the blood showed hæmoglobin 50 per cent.; red blood-corpuscles reduced to 3,000,000 per c.mm.; no increase in the number of or change in the white blood-corpuscles. The symptoms now seemed almost entirely referred to the stomach and prompted me to make an examination of the stomach-contents.

After a test-meal on July 15th there was complete absence of free HCl,

presence of pepsin and rennet, presence of a small amount of lactic acid, moderate amount of bile; total acidity, 0.25 per cent. Inflation of the stomach showed marked dilatation, with a tumor about, the size of an ordinary egg, occupying the normal position of the pylorus, showing a considerable lateral movement during the inflation.

Taking the history of the case into consideration, the increasing cachexia, the result of the chemical examination of the stomach-contents, the dilated stomach found on inflation, the tumor occupying the normal position of the pylorus, its increase in size during the weeks preceding the final examination, the blood-count, and low hæmoglobin percentage, I was prompted to diagnose carcinoma of the pylorus associated with gallstones.

Repeated examination of the stomach-contents failed to give results different from those obtained at the first examination. At no time did congo or tropæolin paper or the Gunzburg test show the presence of free HCl.

The patient's suffering now became continuous, the tumor was at all times palpable; there was increasing splashing of the stomach-contents; there was more or less peristaltic unrest, and the picture of carcinoma with constriction at the pylorus seemed complete. There was at no time more than a moderate amount of jaundice. The urine was of normal specific gravity, occasionally it contained a trace of bile-salts and pigment, never albumin or sugar. An unfavorable prognosis was given, and from day to day the patient grew more wretched and weaker.

In this condition she continued until October 1, 1896, *a period of fifteen months after the recognition of the tumor, during which time the latter was always palpable.* On that day she was seized with violent pain which radiated throughout the upper half of the abdomen.

During my absence another physician was called to see her, and partially relieved her by hypodermatic injections of morphine. During the first week of October, 1896, symptoms of partial intestinal obstruction became manifest. There was considerable hiccough, increasing weakness of the pulse—which until the present time had been of good quality—while the tumor was no longer palpable. During my visit on October 8, 1896, I noticed a characteristic coiling of a piece of intestine into sausage shape in the upper part of the abdomen, stretching from the right to the left side, across the lower border of the epigastrium.

This coiling continued for about sixty seconds, when it disappeared after an audible gurgling, with the relief of the acute pain. On the following day the symptoms were in no measure relieved, though the patient had passed some flatus per rectum; *the tumor was not palpable;* the upper abdominal regions were tympanitic; there was more or less vomiting of a dirty green, at times brown colored, sour-smelling fluid; the coiling of the intestines had increased, and about four feet of intestine could be seen, sausage-shaped, tense before it collapsed, after a characteristic gurgling in the upper part of the abdomen.

Deep palpation now showed the presence of a hard mass in front of the tense intestine, the size and shape of which corresponded exactly with that of the tumor originally found in the region of the pylorus. The nature of

this tumor was no longer a matter of doubt, for I concluded that we had had an enormous gallstone impacted in the gall-bladder, simulating the symptoms of pyloric cancer.

That this had been dislodged was no longer doubtful. The movable mass in its progress downward was giving rise to partial intestinal obstruction and increased coiling of the small intestine. On October 13th we were enabled to empty the colon by means of high rectal injections without making any impression upon the symptoms referable to the small intestine.

The strength of the patient remained about the same; the temperature continued between 97.9° and normal; the tongue throughout was moist, stained by the vomited matter. On October 14th the coiling seemed to involve the entire length of the small intestines; these could be seen through the abdominal walls, distinctly sausage-shaped, and could be moved upon each other. The increase of coiling seemed to justify me in delaying surgical interference. I concluded that obstruction was not complete, and that the obstructing mass was movable, as shown by the increased length of the intestine involved from day to day. I felt that if the strength of the patient would permit, we might wait until the offender was safely passed into the large intestine by nature's effort.

On the morning of October 16th, Dr. Coe, of Syracuse, and myself, visited the patient for the purpose of determining a method of hastening the passage of the mass. On entering the room our patient received us cheerfully. She informed us of the fact that after a night of considerable suffering from rectal tenesmus, without coiling of the small intestine, she had passed an enormous stony mass, which she had left in the vessel, where Dr. Coe and I found it. It proved to be a gallstone, composed mainly of cholesterine. Its circumference was 13 cm. (5½ inches); its length 7.5 cm. (3 inches); its weight was 368 grains (23 grammes).

There were no further symptoms referable to the abdominal organs; the patient gained strength; after a few weeks she resumed her household duties. The stomach, while still somewhat dilated, performed its functions satisfactorily, and to all appearances the patient was fully restored to health.

About eleven months after the passage of this enormous gallstone, and during my absence from the city, Dr. Kieffer attended the patient for what was considered an acute indigestion. There were no pains characteristic of gallstone colic. Four days after this visit the patient sent to my office a gallstone which she had passed after considerable rectal spasm. It weighed 15 grammes (240 grains), was 5 cm. (2 inches) long, and 7.5 cm. (3 inches) in circumference. Since the passage of this last gallstone the patient has remained well.

From a diagnostic as well as from a pathologic stand-point, this case is full of interest. We had the complete clinical picture of cancer of the pylorus, coupled with cholelithiasis. No other diagnosis seemed justified when we considered the previous history, the repeated attacks of gallstone colic, the final tumor persisting for months with gastrectasia; the characteristic displacement of the

mass to the right, and its upward movement on inflation of the stomach, the results of the analysis of the stomach-contents, with the emaciation and cachexia.

With these conditions present, the gallstone disease was readily considered to be of secondary importance. The irregular forms of gallstones, as Naunyn has forcibly demonstrated, by their prolonged incarceration, may give rise to a variety of pathologic complications, the most serious of which are attributable to added infection or ulcerative changes. In the case reported, the enormous gallstone, which finally gave rise to partial intestinal obstruction, had filled the gall-bladder, which organ, as the result of protective and adhesive inflammation, became adherent to the duodenum.

The pylorus was sufficiently distorted by traction and thickening to suffer ultimate constriction, with consecutive gastrectasia. After fifteen months of retention in its capsules the offender escaped by an ulcerative process through a fistulous opening into the duodenum, the free peritoneum being well protected. In its descent downward the stone was arrested at various points, causing obstruction with increasing intestinal coiling and all of the other symptoms mentioned. The final unique feature of the case was the passage of the stone eleven months after the disappearance of the tumor, without the usual painful symptoms. Undoubtedly this stone originally formed a part of the misleading tumor, but it had found during its detention—and after the escape of the first large stone—a suitable resting-place in a diverticulum of the adherent gall-bladder, a condition pictured by Riedel.¹

Finally, the stone escaped through the patent fistula into the duodenum. The fact that this last stone gave rise to no symptoms is by no means surprising, for incarcerated stones have frequently been found without having been suspected, in spite of the fact that great local mischief had been done. Many of these unsuspected cases are associated with malignant disease. The writer has several times found innumerable concretions in the smallest branches of the hepatic ducts without a single symptom referable to the liver.

It will be profitable in connection with this case to consider three points:

1. The simulation of pyloric carcinoma.
2. The ulcerative process causing the gall-bladder duodenal fistula.

3. The final intestinal obstruction. (Incomplete.)

1. The simulation of pyloric carcinoma, which continued in this case during fifteen months, is not entirely without parallel. Simulation was made easy by the presence of the tumor, the ultimate reduction of stenosis of the pylorus, and dilatation of the stomach. Eminent clinicians have been misled in similar cases.

Pepper² reports a case in which there was a gallstone of unusual dimensions which simulated scirrhus of the pylorus with all of the symptoms of cancer of the stomach, including persistent vomiting and great irritability of the stomach. The patient died three weeks after coming to the notice of the physician, some six months after the commencement of his sickness.

"The tumor felt during life, in the pyloric region, proved to be a large gallstone completely filling the bladder and moulded to its shape. The gall-bladder itself, however, was perfectly healthy, as also the liver and its ducts. The surface of the stone was unusually smooth, of a light-yellowish color; it weighed a few grains more than half an ounce, and measured in its greatest circumference two inches, in length two and one-half inches."

A number of the small intestines were agglutinated; the wall of these was adherent in several places; they connected with each other through ulcerated openings. The stomach was perfectly healthy. Other parallel cases are reported by Miles,³ Fiedler,⁴ Ross,⁵ Hale White,⁶ and Ogle.⁷

In all of these cases, as in the case reported by the writer, there was gastrectasia and a palpable tumor. In the case reported by Miles there were evidences of fermentation of the stomach-contents. In the cases of Fiedler and Ross there was vomiting of blood. In all of these cases the writers made a positive diagnosis of cancer of the pylorus during life.

Naunyn⁸ reports a case which he observed in Königsberg, in which a tumor persisted during seven months in the region of the pylorus.

At first the tumor grew rapidly, then suddenly disappeared. While the tumor was palpable there was persistent vomiting. After one year there was recurrence of tumor, recurrence of vomiting, persistent pain in the right hypochondrium, gastrectasia, fermentation, increasing cachexia, final coma, and death. At the post-mortem an enormous gallstone filled the gall-bladder, there was ulceration of the adherent duodenum, the gall-bladder itself was

ulcerated in spots ; besides the communication with the duodenum, there was a fistula leading from the gall-bladder into the colon.

Fiedler's case was a woman, sixty-six years of age, who had repeated attacks of so-called gastralgia with chills, beginning one year before observation. She finally developed gastrectasia, hæmatemesis, pyloric tumor, disappearance of the tumor followed by intestinal obstruction persisting during six days ; the stone finally passed the rectum. Its weight was 12 grammes.

Naunyn⁹ reports Schreiber's case in which Mikulicz operated for pyloric stenosis which was supposed to have been caused by an ulcer. He found a large gallstone forming the base of a pyloric ulcer, which latter he removed. The patient was cured.

Similar conditions have been found by the writer post mortem, demonstrating the fact that a gallstone may cause perforation, remain in its original position for some time before migrating, or it may not migrate at all.

2. The aberrance of large gallstones through fistulous canals into the intestine occurs oftener than has been suspected. If careful examinations were made, many cases of doubtful hæmatemesis and intestinal hemorrhage would be found due to perforation from this cause.

The profession has only recently awakened to an appreciation of this fact. It is interesting to note that with the exception of one case of perforation of a gallstone from the gall-bladder into the jejunum, reported by Bartholin¹⁰ in 1654, no case of ulceration of a stone from the gall-bladder into any of the abdominal organs was reported until 1770, when Beaussier¹¹ reported the first case of gallstone ulcerating its way into the stomach. In 1775 J. G. Walter¹² reported the first gall-bladder colon fistula, while in 1783 Blumenbach¹³ made the first report of a gall-bladder duodenal fistula.

Courvoisier¹⁴ calls attention to the fact that at the end of the eighteenth century there were but nine cases of gall-bladder intestinal fistula recorded, while three times as many cases of intestinal obstruction due to gallstone had been reported. The latter fact is proof positive of the unsuspected frequency of associated inflammatory and ulcerative processes in many of these cases.

Of four hundred and ninety-nine perforations due to gallstones, eighty-three opened into the duodenum and thirty-nine into the colon (Courvoisier¹⁵). The writer, in compiling the cases of cholelithiasis, finds that four hundred and twenty-one were examined

post mortem at Basel from 1872 to 1888, in which there were nineteen perforations, or 4.7 per cent.

In adding the cases of cholelithiasis observed by Roth, Courvoisier, and Schloth, 166, 255, and 343 respectively, a total of seven hundred and sixty-four cases, he finds that perforation took place into some part of the intestinal tract in twenty-five cases. The proportion of colon to duodenal fistulæ, as near as the writer can determine, is practically 1 to 2.5.

3. In connection with this case the occurrence of complete or partial intestinal obstruction deserves more than passing notice. With the disappearance of the original tumor, and the appearance of intestinal distention and the gurgling followed by immediate collapse of the tube, came the suspicion that the offender was a gallstone of considerable size.

The literature relating to intestinal obstruction due to gallstone is by no means meagre, and the possibility of its occurrence must not be forgotten. In fact, we must conclude that the occurrence of intestinal obstruction, after the passage of gallstones from the gall-bladder into the intestines, is surprisingly frequent, owing to the large size of these stones. Thus, Courvoisier¹⁶ reports ileus in twenty-eight of seventy-three cases, or 38.3 per cent.

We are frequently misled in our diagnosis because of the fact that gallstones find their way into the intestinal tract through fistulous openings, without producing symptoms until the sudden occurrence of obstruction. The differential diagnosis of the cause of the obstruction in this class of cases cannot possibly be made.

Mayo Robson¹⁷ reports cases of acute intestinal obstruction from gallstones, in some of which recovery followed operation, in others the stones after a number of days were passed per rectum. In one case reported by Gray¹⁸ obstruction continued twelve days before the stone was dislodged. Craigie¹⁹ reports a case in which intestinal obstruction continued nine days, at the end of which time the stone passed and the patient recovered.

The prognosis is much more serious when ileus follows gall-bladder duodenal fistulæ than when the opening is into the colon. Of thirty fatal cases twenty-eight were due to gall-bladder duodenal fistula, and only two to gall-bladder colon perforation (Naunyn²⁰).

If a gallstone finds its way into the duodenum through the common duct direct, there is but little danger of intestinal obstruction. The rarity of ulceration through the choledochus wall of

stones large enough to cause intestinal obstruction, is emphasized by Courvoisier.²¹ He found in thirty-six cases in which large stones entered the intestine, and in which post-mortems had been made, that three had escaped through the common duct.

The expectant treatment in the writer's case seemed justified because we were reasonably certain that we had a gallstone to deal with and that it was slowly moving along.

Robson²² says: "If it were possible to be certain that a gallstone was the cause of the block, the expectant form of treatment would be fully justified, since the probability, arguing from published cases, is that the gallstone would eventually pass." . . . The same author suggests that in those cases offering "diagnostic difficulties" the surgeon is accepting "great responsibility in waiting for nature's cure."

Naunyn²³ makes the statement, after considering the results of thirteen operations for ileus due to gallstones—of which number only one recovered, that laparotomy is not to be recommended—that in over 50 per cent. of the cases recovery results without operation; that in many of these the condition yields, after from seven to nine days of obstruction; and as operators will always be encouraged by these facts they will rarely operate early; hence they will find, with late operations, necrosis of the intestinal wall and circumscribed peritonitis.

Langenbuch²⁴ takes a more extreme view of this question. He makes the unqualified statement that "gallstone obstruction is a surgical disease, the treatment of which is to be entrusted to the physician only during a very short period."

CASE II. *Infectious cholecystitis; cholangitis; empyema of gall-bladder; gallstone formation; obliteration of cystic and common ducts. Probable primary duodenal ulcer; cholecystotomy; final choledcho-duodenostomy; cure.*—On September 12, 1897, I saw Miss W., aged twenty years, a student, in consultation with Drs. Easton and Kellogg, of Syracuse. Her family history was negative. Prior to January, 1897, she had been in good health. While in Chicago shortly after New Year of 1897 she was taken with fever, and evidences of tonsillitis, finally more or less pain in the upper abdominal region, marked gastro-duodenal disturbances, rapid pulse, and after a few days repeated chills, which observed a periodicity, recurring at intervals of from twelve to twenty-four hours, without (at this time) noticeable jaundice.

The physician in attendance during her stay in Chicago considered her trouble to be of malarial origin, and treated her accordingly. She remained in bed five weeks, had not then convalesced completely, but continued to complain of vague symptoms, malaise, and a generally reduced condition,

when in March, 1897, she was suddenly seized with severe lancinating pains in the right hypochondrium, which continued to be acute during two hours before she was at all relieved.

Her symptoms of gastro-hepatic disturbance now became continuous, and she had had at intervals of a few weeks, when Drs. Easton and Kellogg saw her, what to them seemed characteristic attacks of gallstone colic.

On August 9th she became jaundiced. Dr. Easton attended the patient in Syracuse. She had with each colic more or less elevation of temperature, usually between 100° and 101° F. A sharp rise of temperature, averaging 103° F., followed the more acute exacerbations of what had now become a chronic condition. Jaundice persisted and became more intense with each paroxysm of pain. Her temperature was at no time normal; usually slightly elevated. Between the attacks, her pulse was at all times alarmingly rapid without encouraging arterial tone. The urine had been examined and found bile-tinged without albumin, negative in other respects.

I found the patient in a typhoid condition. The tongue was characteristic; pulse varied in frequency from 110 to 120; at one time during the consultation it fell to 100 per minute; temperature 100° F. There was intense jaundice, with all evidences, subjective and objective, of profound infection, associated with disease of the gall-bladder and bile-ducts. The intestines were distended with gas. The most acute suffering from pressure during the examination was located in the region of the gall-bladder.

Physical Examination. There was nothing noteworthy in the thorax. The abdomen was tympanitic and tender to pressure. Careful examination revealed a mass, corresponding in size to a goose-egg, which gave fluctuation on deep pressure. This tumor moved up and down with respiration. The liver dulness was slightly increased. The spleen was slightly enlarged.

A diagnosis of infectious cholecystitis, cholangitis, empyema of the gall-bladder, and associated gallstone was made. We concluded that in all probability there was occlusion of the common duct. Immediate operation was recommended.

Dr. Easton took the patient to New York, where on September 20, 1897, Dr. Lange operated, opening the gall-bladder, which was found filled with pus. A gallstone the size of a beech-nut was found in the gall-bladder. The cystic duct was occluded. The common duct was palpated, found hard, thickened, but no stone could be felt in it. It was not disturbed. Following this operation there was slight improvement. Whatever discharge finally escaped through the wound proved to be the secretion of the gall-bladder only. The temperature was lowered; there was less jaundice, though this was not materially changed.

About October 1, the patient had a chill, after severe biliary colic, requiring morphine. Pulse again became rapid, fever high, and icterus deepened decidedly. Stools continued putty-colored. Patient's condition warranted the conclusion that the common duct was still obstructed, and that there were either hardened mucus and pus, or gallstones, which had been forced to the obstruction, giving rise to the characteristic pain of biliary colic.

The deep jaundice and other increasing positive evidences of obstruction

of the common duct prompted Dr. Lange to undertake a second operation on October 6, 1897. On opening the common duct no stone was found, in spite of careful search; but a cicatricial contraction was felt at the point of entrance into the duodenum. A new opening was made into the duodenum, and an anastomosis was then established between the common duct and the intestine.

Dr. Lange reported everything progressing favorably for five days, when, after the removal of the tampon, the suture-line leaked, and for about one week bile and duodenal contents escaped through the wound. The general condition of the patient suffered materially. Finally, the skilful surgeon—by means of persistent posture on the left side, and an improvised tamponade—succeeded in healing the wound. There were no further symptoms of obstruction. The discharge once checked, the jaundice disappeared, and recovery was uninterrupted.

The gall-bladder has remained fistulous, but the discharge from this is only scant—nothing more than a trace of mucus daily, causing no inconvenience. This can be overcome later if indications demand it.

In the hands of a less experienced surgeon, this young life, in all probability, would have been lost. The case is as interesting in its pathologic as in its surgical aspect. The history of this case strengthens the more recent views which attribute to infection an important rôle in the causation of pathologic changes within the bile passages, and in the production of gallstones.

The primary illness associated with tonsillitis in January, 1897, was a far-reaching infection; this spread from the intestine, where there may have been a duodenal ulcer in the region of the papilla, to the bile passages and gall-bladder, causing cholangitis, cholecystitis, and gallstone formation, with empyema of the gall-bladder and consecutive occlusion of the cystic and common ducts, the latter due to deep ulcerative or inflammatory changes. The enlargement of the spleen found at the consultation on September 12, 1897, strengthens these conclusions.

Dr. Lange writes, "I was also under the impression that the pancreatic duct was dilated and formed, with the end of the common duct, a rather large cavity, into which I was able to pass my finger behind the posterior wall of the duodenum."

The great interest in this case is centred in the unique obstruction of both the common and cystic ducts, as the result of violent infectious cholecystitis and cholangitis. Such cases are exceedingly rare. I have searched the authorities on this subject at my command thoroughly, and find no cases which seem to correspond exactly with the case here reported.

In the large proportion of choledochus strictures reported the duct was much dilated, resembling at times the gall-bladder. Langenbuch²⁵ reports four cases of common duct stricture in which choledochostomy was performed. In each of these there was enormous cystic dilatation of the common duct, which in each case had been opened and drained; the respective operators supposed that they were dealing with a distended gall-bladder, never suspecting the distention of the common duct. In two of these cases the autopsies proved the fallacy of the operators' conclusion,²⁶ Helferich and Ahlfeld.

In the case of Levy²⁷ the duct was bent upon itself, distended and mistaken for the gall-bladder. In the fourth case, Quenu,²⁸ a large abscess was opened which was not connected with the gall-bladder, but was, according to Terrier, in all probability connected with the common duct.

Yoersen,²⁹ during a laparotomy, found a swelling the size of an apple, which, owing to its position, he supposed to be the gall-bladder. He opened the mass, after stitching it to the abdominal walls, and gave exit to foul-smelling pus and gallstones. Patient died the following day. It was demonstrated that the common duct had been fastened to the parietal peritoneum; the gall-bladder was not involved.

Kocher³⁰ was the first to avail himself of the original suggestion of Langenbuch. The latter had called attention to the possibility of establishing an anastomosis between the common duct and the duodenum, the operation which Lange performed in the case reported.

Kocher's case was one in which a gallstone was impacted in the common duct. He was fearful that lithotripsy might fail; he therefore introduced his sutures into the duodenum and common duct, with the idea of ultimately uniting these if necessary. The stone yielded and the anastomosis was not made.

Besides this case, in which choledochoduodenostomy has been performed, I find one reported by Riedel.³¹ In this case the operation was done for impacted stone, which the operator could not reach in the common duct. He made an anastomosis between the common duct and the duodenum. The stitches gave way, owing to the thin choledochus wall. The patient died of peritonitis.

Sprengel³² reports the recovery of a case in which he first did a laparotomy and attempted to push a stone impacted in the common

duct into the duodenum. In this he failed, and closed the abdomen. Three weeks after this operation he made a second attempt and completed the operation with a choledcho-duodenostomy.

Terrier³³ and Kocher³⁴ each report a case in which the anastomosis became necessary in complicated constriction from gallstone, and in which the patients made a happy recovery. Czerny³⁵ reports a case in which he united an enormously dilated and constricted common duct, by means of the Murphy button, with the duodenum. The case is supposed to have terminated favorably.

Cases in which there has been obstruction to the outflow of bile from the choledochus into the duodenum, and where the simpler operation of cholecysto-enterostomy has been successfully accomplished, do not concern us in considering the case reported. Anastomosis between the gall-bladder and duodenum is to be preferred, provided the former will serve as a canal to return the bile from the common duct above the constriction to the intestine. It has occasionally been found impossible to establish the communication with the duodenum; hence the colon has been made the receptacle of the diverted bile.

The suspicion of ulcer of the duodenum, expressed in considering the pathology of the case reported, is justified by a statement made by Langenbuch,³⁶ in which he mentions the possibility of cicatricial contraction of the common duct following duodenal ulcer; but he fails to mention a case. Courvoisier³⁷ has collected 62 cases of obliteration of the choledochus. Of this number seventeen were congenital. The majority of these were due to foetal inflammation; in all probability most of these were of specific origin.

Cholelithiasis was the more frequent cause of constriction of the common duct after birth, and was found in twenty-three cases.

In one case reported by Archambault³⁸ there was obliteration of the common duct due to a typhoid process, propagated from the intestine. A case of Richards³⁹ is reported in which there was benign stricture of the pylorus which involved the common duct in the cicatricial contraction.

Musser and Keen⁴⁰ report a case of common duct obliteration due to chronic enteritis, and make mention of the "closure of the ducts" by the "healing of an ulcer in the duct or at the duodenal orifice."

Courvoisier's list contains three cases^{41 42 43} in which traumatism was supposed to have caused obliteration of the choledochus.

In the remaining cases reported by Courvoisier the histories do not justify positive conclusions as to the origin of the obliteration of the duct, but the compiler adds, "the thought which one must always entertain in connection with these cases is that irritation from gallstone descent is the more probable cause, though this cannot be proven."

CASE III. *Wandering after ulceration through the gall-bladder of a large gallstone through a fistulous opening, with numerous dilatations, into the retro-peritoneal space, finally lodging back of the pancreas. Symptoms of pancreatic cancer; death.*—In this case, a man, aged about fifty-five years, was seen in consultation with Dr. George R. Kinne, with all the symptoms of grave abdominal disease. There were no evidences of stenosis or intestinal obstruction, but all of the usual symptoms of malignant disease of the mesenteric glands, with more or less pancreatic indigestion. There were no symptoms referable to the gall-bladder; the patient had never had gallstone colic. Emaciation was progressive, and after the lapse of six months he died of asthenia. There was a suspicious dulness in the upper part of the epigastrium.

The post-mortem revealed the fact that a gallstone had quietly burrowed its way from the cystic duct into the retro-peritoneal space, and had found a resting-place in a dense connective-tissue capsule back of the pancreas. There were evidences (in uneven dilatations of the fistulous tract) of incarceration at several points during the progress of the stone to its final resting-place. Only three cases of retro-peritoneal perforation were found in the collection reported by Courvoisier.

CASE IV. *Migration of a large gallstone through gall-bladder; abscess formation; final ulceration into pelvis of right kidney; repeated attacks of renal colic; death.*—The distance to which gallstones have safely wandered is demonstrated in this case.

The patient was a man, aged sixty years, who came to Syracuse from the lumber regions of Michigan. He had had repeated attacks of vague abdominal pains and had often suffered from intermittent malarial fever. On one occasion, about two years before he came to Syracuse, he had a severe attack of what in the light of subsequent developments must be considered gallstone colic. He seemed to recover from the acute attack, but was never free from pain in the right lumbar region. After a few months he developed a train of symptoms referable to the genito-urinary organs, particularly the right kidney. At one time he claims to have had free hæmaturia. Subsequently the color of his urine became dirty brown and flaky. Emaciation was progressive. He finally became cachectic, and when I saw him was almost moribund. About two weeks after my first visit he passed a small calculus, per urethram, which fell into the vessel and was not saved. The urine contained bile, blood, pus, and albumin. He died four weeks after his arrival in Syracuse.

The post-mortem disclosed a fistulous tract leading from the gall-bladder into an abscess the size of an orange, and from this to the pelvis of the

right kidney, in which we found an enormous cholesterine gallstone. The gall-bladder wall was thickened, contained three good-sized gallstones; the abscess was surrounded by a dense mass of connective tissue; the kidney tissue was infiltrated and presented a characteristic yellowish-brown appearance.

Courvoisier⁴⁴ reports seven cases of urinary fistulæ associated with gallstones; six of these were found in women. In one of these cases reported by Pelletan and Barraud⁴⁵ two hundred stones passed the urethra within eight days. In this case the last stone became caught in the urethra, but was easily pushed on from the vagina. The patient recovered.

An abstract of the histories of these cases presents very interesting reading, and can be found in Langenbuch's⁴⁶ recently published work.

Experience has convinced me that in many cases cholelithiasis, with or without colic, is early associated with localized peritonitis. This may in some cases be a fortunate occurrence for the patient where ulceration finally takes place, but in a number of cases consecutive adhesions, with distortion and displacement of the gall-bladder and adherent intestines, have caused insuperable obstacles to the performance of life-saving surgical operations, and have given rise to annoying symptoms.

CASE V. Repeated unrecognized attacks of gallstone colic; incarceration of three large gallstones in common duct; symptoms of infection; early operation refused; late operation; enormous adhesions and distortion of the parts; death.—Patient, female, aged thirty years; seen in consultation on June 21, 1895, with the late Dr. Magee. She had all the symptoms of impaction of a gallstone in the common duct, with associated localized peritonitis and infection.

In spite of the fact that Dr. Magee and I insisted upon immediate operation, other consultants doubting our diagnosis, the operation was delayed until the woman was practically moribund. Dr. Magee opened the abdomen, found dense adhesion of the gall-bladder to the duodenum, the parts were drawn backward and downward, the common duct could be distinctly felt filled with enormous gallstones, but surgical relief was made impossible by the depth of the parts and their changed anatomical relations. The patient died. Post-mortem showed three stones closely packed in the common duct, the surface of which was ulcerated, the duct enormously distended, beside the conditions mentioned.

In many cases pain in the region of the gall-bladder, after the passage of gallstones, becomes persistent. This symptom is due to adhesions of the gall-bladder to the surrounding parts and traction.

Mayo Robson⁷ reports cases of this kind in which he operated, overcoming adhesions, to the great relief of his patients. These operations were undertaken for the removal of suspected gallstones.

My list of cases includes a considerable number in which gallstones found exit through the abdominal wall. The point of perforation was usually in the neighborhood of the umbilicus. These cases present no unique features, and I will not dilate upon them.

One of these, however, is interesting from the fact that the patient is now seventy-seven years of age, and that during the past twenty years she has passed innumerable biliary calculi through an opening in the abdominal wall which closes, as a rule, within a few weeks after the passage of the stone. Her general health does not seem to suffer in consequence of these occurrences.

CASE VI. Repeated attacks of gallstone colic; symptoms of infection; tumor formation; final mural abscess over tumor, probably due to escape of small stone through short fistulous tract; protection of free peritoneum by strong connective-tissue growth, after which gall-bladder separated from abdominal wall; 601 small, hard gallstones in gall-bladder, weighing (470 grains) 29 grammes; obliteration of cystic and common ducts, also large hepatic ducts, by productive inflammation; death.—Patient, Mrs. H., aged fifty-six years, seen in consultation with Dr. Doust. In this case there is a history of gallstone disease, with repeated attacks of colic, dating back twenty-five years. When I saw her on October 19, 1897, she was deeply jaundiced, had all of the symptoms of gallstone impaction in the common duct. There were also evidences of an enlarged gall-bladder with enlargement of the liver.

In the course of a few weeks the patient passed a large number of small gallstones, without relief of her symptoms. On December 9th I saw the patient again in consultation with Drs. Doust and Breese, when a fistulous tract was found at a point about two inches below the free border of the ribs, on a line drawn from the right sterno-clavicular articulation. Within a few days after this visit Dr. Breese examined the patient under ether. He opened the sinus, through which yellowish pus had escaped, but failed to find an opening from this into the gall-bladder.

On January 14, 1898, Dr. Breese again operated and opened the abdomen. He found the gall-bladder everywhere adherent and hard. Pressure on the surface of the gall-bladder gave a peculiar grating. The anterior wall was converted into a dense cicatricial tissue, and was continuous with the liver, from which it could not be separated. The cystic duct was obliterated, converted into a dense mass of infiltrated tissue. The pancreas was hard. The adhesions were so dense, the changes so far-reaching, that the surgeon could see no way of overcoming the obstruction; hence the abdomen was closed.

At the post-mortem the gall-bladder was found to contain 601 small, pyramidal, hard, white stones. The induration of the common and cystic ducts had a look suspicious of carcinoma. There were a few enlarged

glands to be seen back of the gall-bladder. The mural abscess was probably due to the escape of one of the small stones, after which the gall-bladder closed and detached itself from the parietal peritoneum. The hepatic duct was obliterated at its junction with the cystic. The ducts above the obliteration were enormously dilated and filled with bile.

Our clinical experiences have demonstrated the fact that gallstone colic is not entirely without danger from sudden heart failure. In elderly people the association of gallstone disease with myocardial degeneration is not at all uncommon. In some of these cases we have also had associated diabetes. In a case seen a number of years ago the patient, who had had repeated attacks of gallstone colic, was suddenly seized, during one of these, with violent præcordial pain, and immediately expired.

Post-mortem examination showed well-marked myocardial degeneration, dilatation of the heart, with partial rupture in the anterior wall of the left ventricle. A gallstone the size of an ordinary marble was found impacted in the cystic duct.

In a number of our cases of persistent jaundice due to long-continued gallstone impaction, alarming brain symptoms developed. In one of these, an old man became violently insane. The insanity yielded with the relief of the obstruction and the disappearance of the jaundice. A similar case was recently seen in consultation with Dr. Jacobson, where prolonged cholæmia, due to obstruction of the common duct, gave rise to confusional insanity.

Gall-bladder infection from the presence of the bacillus typhosus, also the involvement of the bile-ducts in a similar process, or suppurative cholangitis, with and without gallstone formation, have been observed by the writer, but these cases cannot be considered at this time.

An attack of gallstone colic masked the early diagnosis of a case of typhoid fever seen with Dr. Joy at Cazenovia a few months ago. A coachman who had previously suffered from gallstones, while driving, was suddenly seized with high fever and the usual pains of an ordinary bilious colic. He had been feeling badly for several days before the attack. Great tenderness over the region of the gall-bladder persisted with slight jaundice and evidences of localized peritonitis. The high fever was entirely out of proportion to the extent of the local peritonitis. We found, as the disease progressed and time was given for diagnosis, that we had typhoid complicated with cholelithiasis. The patient recovered.

Only once have I found post mortem the ball-valve gallstone in the common duct in the diverticulum of Vater, a condition which has been so thoroughly described by Osler.⁴⁸ I have seen several recoveries after repeated symptoms of partial obstruction of the common duct, with occasional marked exacerbation and deepening of jaundice. These cases were usually accompanied with the intermittent hepatic fever described by Charcot, which led me to believe that I was dealing with ball-valve gallstone in the common duct.

Since the appearance of Courvoisier's, Naunyn's, and Mayo Robson's elaborate monographs, Riedel's work in 1892, in which his statistics showed a successful issue in 90 per cent. of gallstone operations, the monumental work of Langenbuch, recently published in the *Deutsche Chirurgie*, and the convincing paper read by Lange,⁴⁹ of New York, at Johns Hopkins', the duty of the diagnostician has been made plain. The symptoms of all cases of cholelithiasis demand correct interpretation at the earliest possible moment. I have attempted to demonstrate, both by clinical and pathologic data, that processes which are protective may at the same time seriously interfere with the surgeon's results. I feel justified in concluding that the persistence of gallstone symptoms demands the same concerted action of physician and surgeon that has so promptly succeeded in reducing the mortality from appendicitis.

The surgeon will always require the physician's knowledge of pathology in these cases, and possibly some of his conservatism to guide him; but, together, they will ultimately find themselves breaking loose from extreme views to meet on vantage ground where deliberate judgment and sound reasoning will prevail.

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XXXII. THE COLD-WATER TREATMENT OF TYPHOID FEVER.

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THE experience of the profession with the Brand treatment of typhoid fever is a striking illustration of the fact that something more than scientific merit is needed in a therapeutic measure to secure its general adoption. The proof is perfect that cold-tubbing is the ideal treatment, yet probably not one case in twenty in private practice is treated by it to-day. Human nature, which has always to be reckoned with in our art, has rendered against it a verdict of "too heroic," and declares its preference for some-

thing, perhaps more dangerous, but less distressing. Nevertheless, the Brand treatment is a magnificent achievement, and to it we owe, if not a rule of practice, the establishment of certain therapeutic principles which are the bed-rock of all sound antipyretic treatment. With the attitude of the professional mind convinced of the merits of the extreme cold bath, but unpersuaded by reason of its impracticability, testimony in favor of the milder forms of bath on the double score of efficiency and wide field of usefulness is worthy of consideration.

The disease in question is one which varies so much in severity in different localities and in different epidemics, and is, moreover, so complex in character, that a report by a single observer of a series of successful cases can never be conclusive as to the merits of a line of treatment, and may be wholly incompetent. I would, therefore, submit my personal experience in favor of cold sponge-bathing, with the understanding that in point of number of cases it can be regarded only as a contribution of testimony, but that, in other respects, circumstances have made it fairly competent.

It so happens that I have all my life, in treating typhoid fever, used cold sponge-bathing and nothing else. My one hundred and twenty-odd cases cover my entire professional experience of twenty-three years. The one locality in which I have resided is not favored as to mildness, and the series of years includes several epidemics of decided severity, so that the general average of my cases would represent a fair average of the severity of the disease at large. In no one of them have I ever used any of the so-called specifics, antiseptics, or medicinal antipyretics.

It may be a subject for wonderment that a man should live for the past quarter of a century and not, in all that time, be tempted to use some of these remedies, but the explanation is simple enough: I adopted cold-water sponging in 1875, at a time when it was still regarded in my section as a daring innovation. It was a revelation to take hold of a muttering, stupid creature, sliding down in his bed, reeking with sweat and sordes, and after a few days of bathing see his expressionless face wake to a sense of consciousness and comfort and cleanliness. I was successful in those early cases, and my success continued afterward, so that I never cared, and perhaps never dared, to try drug treatment. I have had only one fatal case.

If, then, my uniform success is not fortuitous, it is entitled to

be taken as pretty direct evidence as to the merit of cold sponging. Perhaps I might better stop here with the mere statement of the fact, to be taken for what it may be worth, since I lay no claim to originality in the technics of the bathing, nor to the discovery of any new principle. But there seems to be no settled practice in the use by the profession of these milder forms of bathing, so that I may venture to lay emphasis on one or two points which I have learned to regard as of especial value, and to discuss also a point of general management which, more than any other, I regard as important.

We may regard typhoid fever, for our present purpose, as the action upon the body of a toxin, manifesting itself by high temperature and its consequences, and by depression of the nervous system. Cold-water bathing does not assume to destroy the toxin, but to combat its effects in two ways: First, by the lowering of temperature through the abstraction of heat, and, secondly, by the stimulation of the nerve-centres to maintain functional activity and nutritive integrity by means of thermic and mechanical shock.

Mechanical shock or friction operates in two ways: First, it excites the vaso-dilator nerves, and so determines a free flow of blood to the periphery, counteracting thereby the danger of internal congestion which the cold water alone would produce, and also it brings more heated blood to the surface to be cooled by the water; and, secondly—and this is its essential belonging, quite apart from hydrotherapy—it stimulates the cutaneous nerves over a wide area, thereby reflexly stimulating the entire nervous system.

To have made a greater use of friction than is commonly done, both for the good it can do by itself in waking up the nerves, and also in counteracting the circulatory disturbances due to prolonged use of the cold water, is where I may differ from many who use the cold sponge. To have secured the same sum total of effect of heat-abstraction and nerve stimulation, by decreasing the intensity of the cold applications and at the same time increasing their frequency and duration, is where, in common with the cold spongers, I seem to have secured the advantages of cold-tubbing without its drawbacks. To have become convinced of the supreme importance of bringing every available weapon of our armamentarium, balneopathic and otherwise, into prompt and energetic action at the onset of the disease is, to my mind, after the bath, the most influential factor in my success. If I add to that that I know I have killed

no one by *veratrum viride* or antipyrine, I have included, perhaps, all its distinctive features.

Briefly stated, my plan of bathing is this: I order the bath regularly every two hours during the day in any case presenting decided symptoms, of temperature or otherwise, as soon as the diagnosis is made; and I make a provisional diagnosis in case of doubt. I prolong the bath from fifteen to forty-five minutes, according to the severity of the case. In a certain proportion of atypical cases with severe onset I use the bath almost continuously, hour after hour, and also in any case where the response to the treatment is not satisfactory, I meet obstinacy of symptoms by persistency of treatment. All this is possible early, with a heart yet strong, and by free use of friction. These cases, mostly with extreme gastro-intestinal disturbances or nervous manifestations sometimes resembling cerebro-spinal meningitis, are wretchedly uncomfortable anyway, and would otherwise get much drug treatment, so that such assiduous attention in bathing is justified, even if it were not the best on general grounds. I do not regard elevation of temperature as a criterion of the urgency of bathing, or depend upon the fall as a measure of hydrotherapeutic effect. The stimulation of the nerves is the main aim. The temperature of the bath is a compromise in which the feelings of the patient, his strength, severity of symptoms, duration of bath, amount of rubbing are determining factors; but oftenest it will be found that the coldest water consistent with comfort is sufficient to meet the requirements. Weakened subjects with feeble peripheral circulation get a preliminary rubbing, in place of whiskey or a hot drink. Friction, which brings blood to the surface and makes a patient feel warmer, and makes him accept his bath gratefully, does not of itself raise the temperature. Friction alone often quiets restlessness and puts the patient to sleep. Cases which by the tenth day are of mild type, however turbulent and threatening previously, and, of course, many from the outset, are left without other treatment than good nursing. Except twice, I have regarded aborted cases as mistaken diagnoses.

Hemorrhage is a contraindication; pneumonia, not necessarily; bronchitis, not at all. Every case must be considered individually, and much can be learned from and trusted to the observations of a nurse. She soon acquires a proper conception of the theory of the use of the bath from discovering that it is her work which

keeps down the delirium, puts the patient to sleep, and cures the bronchitis, and she learns to increase or relax her efforts with a definite and rational aim. Cases occur, however, which tax the vitality of subjects to the utmost and call for every kind of accessory support.

Next in importance to the bath itself is its early employment. The crisis of typhoid fever is not in the third or fourth week. It is in the first. The battle is to be won then. Any one who plays whist knows that, although the interest centres toward the close on the fall of the last two or three tricks which win the hand, it is mainly the opening lead which determines the final issue; and in the fever it is equally true that that which culminates at the close is only a resultant of forces put in operation from the beginning. The daily damage of the typhoid toxin is no greater in any one day of the twenty-eight days of the fever than another, only the accumulated effect is more obvious toward the end. In those fulminating cases I have referred to, the spoliative effect of the toxin in the first week is immense, yet I have come to regard them as ultimately mild cases, so certainly will persistent bathing break their backs. The gastro-intestinal disorders of the first week are toxic. They are the first significant expression of lowered nerve tone. Calomel in small doses for a laxative effect, and strychnine and muriatic acid are helpful generally; but it is the sponging and rubbing which stop the vomiting, clear the tongue, and restore appetite. To get the digestive apparatus in order for the severe demands which are to be put upon it before it gets functionally weakened is now a matter of timely opportunity. I do not begin maximum feeding until assured on this point.

With bathing promptly begun in the first week, I feel an almost positive assurance of the disease running a mild course. By it we have regulated the metabolic processes of the body so as to increase its resistance to the inroads of the fever; we have won nature to our side in maintaining the strength and the general nutrition.

A twelve-minute paper gives small scope for a full discussion of so wide a subject, which, however, has not been my intention. Without taking myself too seriously, I must confess that I believe in cold sponging, and that, barring associated diseases, complications, and a very small proportion of accidents, and under as favorable conditions as I have had, its early use can always be counted on to yield as good results.

XXXIII. THE OVERWEIGHTED KNEE.

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PHYSICIANS as well as surgeons see many ambulating cases of lame knee. Sometimes the cause is obvious; a blow, wound, strain, or mild rheumatic inflammation; at other times the cause is obscure, the discomfort beginning insidiously, and advice is not sought until disability is marked. The patient may complain only of pain increased by exercise, affecting one or both knees, and there may be no apparent deformity. The more common diagnoses are: subacute arthritis, rheumatism, or some sudden and, perhaps, unconscious strain. You all know the therapeutics of these cases: Rochelle salts, iodide of potassium, colchicum, singly or combined, with rest, massage, electricity, stimulating lotions, blisters, and knee-caps; and it must be said that most patients get well when thus managed. But there remains a small contingent of cases that do not improve materially, and return to harass their medical attendant. Some years ago I found that the most obstinate of this class of patients were fat subjects; but I was slow in associating the obesity and the joint-trouble as real cause and effect.

Obviously if a hod- or trunk-carrier, or a man engaged in an occupation demanding heavy lifting, should complain of his knees, we would at once advise him to desist from his occupation. But when the cause is a greatly increasing weight in the form of a well-marked obesity, involving the continual lifting and carrying of from twenty to sixty or more additional pounds of fat, with the attendant strain on joints and muscles, the average physician may not at once see the analogy to the hod-carrier or artisan engaged in heavy lifting. After having tried various methods of treatment unsuccessfully in some of the conditions described, the idea gradually came to me that I had to do with an overweighted knee—overweighted by general obesity, subjecting the joints, especially the knee, to constant strain when used. When I realized the principle that each joint must theoretically be fitted to sustain a normal weight, and that an excess of weight must act as a more or less constant strain, then the explanation of some of these cases

was clear, and the failure of ordinary methods of treatment was accounted for. The patients who had given me the most trouble were weak and flabby subjects in whom muscular firmness was lacking, and fatty accumulations were marked. So I desisted from further local treatment, and prescribed those measures which would systematically reduce fat and increase and strengthen the general muscular system. Coincidentally with these changes the knee condition improved, and when the normal relation of height and weight were approximated, the knees were well.

Let a sketch of a case bring out in relief what is meant by "the overweighted knee."

Mrs. H., aged sixty years; height five feet two inches; came to me in 1892 for troublesome pains and weakness in both knee-joints, without swelling or deformity. She could not walk far without the knees speedily giving out. She called the trouble rheumatism, and I at first accepted her diagnosis, and acted on it, giving the usual salines and alteratives, but with no success. Next followed counter-irritants, and massage and other remedies, and still the patient did not improve. After weeks thus wasted, the principle above detailed suggested itself. The patient was fat and flabby, and, placing her on the scales, I found that she weighed 199 pounds. I then abandoned further local treatment, gave tonics, and prescribed means for the steady reduction of fat, and had the satisfaction of curing the case after from twenty to thirty pounds of fat had melted away. So I called the condition "the over-weighted knee."

Repeated similar experiences have convinced me that it is not a very uncommon affection. Overweight from tumors, pregnancy, and dropsies is often met with; but these conditions limit activity, and consequently knee-use, and are so plainly the cause of knee-weakness and pain that patients make their own diagnosis and favor themselves to the extent that gives relief. The reason why more patients with marked overweight do not complain of their knees is, that with fatty accumulations such patients often have a corresponding muscular development which enables them to bear, without painful discomfort, their added burden of fat. But there are those unfortunate victims of obesity, especially among weak, nervous, and delicate women, whose fatty accumulations are associated with marked muscular degeneration, and it may be readily seen why they become the sufferers from the overweighted knee. Think of the position of the knee-joint and the strain to which it is exposed. Think of the leverage to which it is constantly subjected. Then add an excess of from twenty to sixty pounds of matter,

however evenly distributed, as a permanent addition to the frame, and one would not be surprised after a time to find the knees giving out, with pain and weakness as the evidences of the additional burden in life.

In a very limited review of text-books I have not seen "the overweighted knee" duly emphasized. Perhaps it is familiar to many of you. But I am quite sure that not all present have clearly defined the trouble, for the cases to which I refer have gone from doctor to doctor before coming to me.

The same principle applies to the back, and we might talk of the overweighted back. But here, again, somehow or other, the patient and physician seem more ready to accept the association than in the case of the knee.

In calling your attention to this subject I wish only to give what I trust may be a helpful hint in practice, applicable to a few of your cases of troublesome knee-joint discomfort when associated with manifest overweight and muscular weakness—and without adequate traumatism, rheumatism, or arthritis to explain the trouble. Usually the disorder will be symmetrical—affecting both joints. If you then "size up" your patients, so to speak, you will in some instances, by a process of exclusion, reach the diagnosis of "the uncomplicated, overweighted knee," and by very simple measures, designed to reduce fat and strengthen muscular tissue, you will have the satisfaction of curing what your patient and possibly some other physicians have found to be a real disorder, which had hitherto resisted all other forms of treatment.

XXXIV. EAR MANIFESTATIONS IN GENERAL DISEASES.

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It is the purpose of this paper briefly to call attention to various ear symptoms more or less frequently observed in the general run of medical and surgical practice, and, if possible, to arouse discussion, especially from the general practice stand-point, and to awaken interest in a special organ which seems to receive neither the study nor the treatment which its importance demands.

There are but few diseased conditions or pathological changes in the ear but that may be traced to causes outside of its own domain. So that in the study of many diseases, especially those of the nose and throat, the brain and nervous system, the exanthemata, in fact in any disease leading to debilitated physical conditions, the ear cannot be eliminated. Such study, especially so far as it pertains to child life, in order to reach the highest benefit, commands the combined interest of the aurist and the general practitioner.

In bringing to your attention some of the more uncommon ear complications in general diseases a single history representing a type will be related, but no special histories of the commoner ones, such as are seen almost daily in every practice, will be given.

CASE I. *Malarial otalgia*.—S. L., female, aged twenty years, came under treatment September 21, 1897, complaining of severe intermittent pain in the right ear. General conditions fairly good, and patient is well nourished, but of nervous temperament. Pain had continued for two weeks, and she described it as "shooting up into the side of the head." She had a roaring tinnitus. Hearing distance in right $\frac{1}{8}$, left $\frac{1}{8}$. Examination of the membrana tympani revealed no retraction, congestion, or inflammation. In fact, it was quite normal in appearance. One year ago she had malaria, and at that time had some pain in the same ear. She had been having chills during the present attack, but could not be sure that they came on with any regularity. Tongue coated and feels drowsy, but the most marked symptom was the pain in the ear, and for this only had she sought treatment.

She recovered fully by the use of the usual remedies for malaria, and with no ear treatment.

This case represents a type that, while not common, is seen with sufficient frequency to require attention, and to make the diagnosis properly necessitates a careful examination of the tympanic membrane.

CASE II. *Otalgia; second-stage syphilis*.—D. A., female, aged twenty-eight years, was referred by her family physician. For five weeks she had suffered from headache of an intermittent character, with rigors, fever, and symptoms of a malarial character. During the past two days the pain had been very severe in the left ear, and patient has felt so ill that she remained in bed. Her tonsils were considerably swollen and painful, and suspicious-looking ulcerative patches were present.

Questioning brought to light sufficient information to establish a diagnosis of commencing secondary syphilis.

Under mixed treatment the otalgia entirely disappeared in a few days.

CASE III. *Hysterical tinnitus*.—I. W., female, aged thirty-seven. Came under treatment October 1, 1897. Exceedingly nervous temperament, overworked, with many home annoyances and troubles. Had been very ner-

vous and excitable for some months. One month previously she was wakened in the night by a severe buzzing in her left ear, from which she succeeded in removing a bedbug. To accomplish this she made use of woman's ever-ready ear-weapon, the hairpin. From this time on she had a most distressing nervous sensation in her ear, loud noises, creeping and scratching impressions, and with it all, loss of sleep and appetite. She was despondent, and thought the bug had destroyed her ear. Examination of the tympanic membrane gave no evidence of excoriation, congestion or inflammation. There was no scar, and, aside from a very slight retraction, it was a healthy and normal ear. Her hearing was normal.

This case represents a type that cannot be overlooked in any general discussion of ear symptoms. Cases of this nature range all the way from the purely neurotic to those where there is some real functional or pathological disturbance due to or associated with disease of other organs. Blake¹ calls attention to them in the following words: "As an example of this may be taken the peculiar and often puzzling cases of variable hearing, occurring in young women, who ultimately become deaf to sounds aerially conveyed." "The great variations, occurring as they do in girls soon after puberty, or in young women who were subjects of considerable nervous and emotional strain, led, without other ascertainable cause, to the conclusion that these variations were purely of neural origin." . . . "A special study of these cases, however, showed a localized congestion of the tympanic mucous membrane." "Another example of the interdependence of the aurist and the general practitioner is shown in cases of non-suppurative middle-ear disease in which the deleterious changes in the lining membrane of the tympanic cavity are furthered by general nervous overstrain, overtire, and disturbance of nutrition.

"The dependence upon local treatment alone often fails of the benefit which might accrue if a consultation could be had by the aurist and the physician who, as the family adviser, has cognizance of the conditions which may have an important bearing upon the etiology and progress of the case."

CASE IV. *Sinus thrombosis, brain abscess, pyemia from chronic middle-ear suppuration, simulating typhoid fever and malaria.*—This history is given to call attention to a form of ear complication which often results in symptoms of general disease. J. W., aged twenty-one years, had suffered from a chronic suppuration of the middle ear from childhood, following scarlet fever. During August, 1897, he went to the Catskills for his vacation, and while there was seized with severe chills, high fever, and vomiting. Frontal

¹ Transactions of the American Physicians and Surgeons, vol. iv. p. 64.

headache was severe, and he returned to the city with what he had been told was an attack of malaria with typhoid symptoms. After his return the symptoms remained the same, the headache becoming more severe, the chills more pronounced, and the temperature higher. His family physician, a very able man, made all the tests for both malaria and typhoid, with negative results. Quinine in very large doses proved ineffective, and he finally concluded that the disease must be located in the cranial cavity.

It was not difficult to make a diagnosis of infectious lateral sinus disease, with epidural abscess and pyæmia, due to extension from the middle ear. Operation was strongly advised by both family physician and aurist, but was refused. The disease gradually extended, and the patient died in about two weeks.

This class of cases have come into far greater prominence of late on account of the success achieved by otologists in saving life by means of early and radical operations. When early diagnosis is made there is every hope of a successful termination providing the operation is skilfully performed along the lines laid down by those who have been the most successful in this line of work. Late operations are usually fatal.

These patients generally come first under the care of the general practitioner for the obvious reason that the symptoms are of a brain, typhoid, or malarial nature, with no new ear symptoms.

It may not be generally known, but many life-insurance companies now either refuse all applicants who have chronic suppuration of the middle-ear, or at least receive them only after an expert opinion has been given as to the probable danger of the ear complication.

Ear symptoms due to traumatism are sometimes puzzling. A patient, child or adult, suddenly becomes conscious of loss of hearing in one ear, usually with loud buzzing tinnitus, but with no pain or discharge, often losing sight of the fact that he has received a blow upon the ear by parent, teacher, in friendly scuffle, or by a breaker when in the surf. Questioning will elicit this information, and visual examination will reveal a moderate-sized perforation of the tympanic membrane. There is another class of traumatic cases more difficult to solve. Reference is here made to those cases of labyrinthine disturbance resulting from indirect violence. A person receives an injury to some portion of the head, from a fall or blow, with resultant symptoms like vertigo, drowsiness, nausea, pain, tinnitus, and deafness. A diagnosis in such cases many times requires a fuller technical knowledge of acoustics

and the methods necessary to determine whether the sound-perceiving apparatus is involved.

Otalgia is a very common, although not constant, symptom in both suppurative and follicular tonsillitis.

As a rule, there is no inflammatory process present in the middle ear, and the examination, which should always be made, reveals a healthy condition of the membrane. In these days when so much attention is being given to the diagnosis and treatment of tuberculosis, and especially when the destruction of the bacilli is so strongly insisted upon, we should not lose sight of the fact that a considerable number of our suppurative middle-ear lesions are tubercular in character, the bacilli being present in the discharges. The destruction of the sputum in such cases will not suffice to rid the surroundings from danger unless every possible means is employed to render the pus discharges immune—a thing which is most difficult of accomplishment.

The presence of adenoid or lymphoid tissue in the vault of the pharynx almost always gives rise to ear symptoms, which are more or less characteristic. Aside from the exanthemata, these growths are most potent causes of attacks of middle-ear suppuration. If these outbreaks are frequent one may almost be sure to find the cause in the nasopharynx.

In patients who do not have suppuration, but who have these growths, there is a condition of the tympanic membrane, associated with more or less deafness, which seems to be almost pathognomonic, and when seen leads one to carefully examine for them. Instead of the normal, pearly gray, glistening appearance of the membrana tympani, it assumes a dull reddish hue with loss of the light reflex. Mothers' statements that the child's hearing is not good should always be heeded, and such proceedings should be instituted as will result in relief, and if possible save the well-nigh endless misery which ensues to those who become deaf. That the presence of adenoids is many times a cause of total and permanent deafness in children has been proven time and time again, and deaf-mutism from this cause is a deaf-mutism which might have been prevented if parents and physicians could have been alive to its seriousness. In a paper on "Adenoid Growths in Deaf-Mutes,"¹ by Frankenberger, of Prague, and translated by Dunbar

¹ *Annals of Otolaryngology and Rhinology*, Nov., 1897, p. 395.

Roy, it is stated that the percentage of adenoids in deaf-mutes is much higher than in the general run of school children.

It must be remembered that in school children about 6 per cent. have adenoids. Frankenberger says: "I have in the last few months . . . made an examination of the inmates of the Prague Deaf and Dumb Institute, in toto 159. Adenoids were found in 94, or 59.49 per cent., among those who were both deaf and dumb. This remarkable frequency of adenoid growths in deaf-mutes is certainly not accidental, but it must be considered with great probability that they stand in some causal relation to deaf-mutism."

Hackneyed as the subject of adenoids must seem to the members of this Society, those who are so often brought face to face with the resultant conditions, even to deaf-mutism, should continue to exhibit the danger-signal until all practitioners of medicine everywhere come fully to realize how dangerous they are to child life.

Ear symptoms of more or less severity nearly always accompany the exanthemata, especially scarlet fever and measles. Pain is the most common of these symptoms, but suppuration and even mastoiditis often result. That much can be done to prevent serious results, and that but little is actually done, seems to be a fair criticism. Early and frequent examination of the ears should be made in all cases, and, realizing that the ear symptoms arise from the septic condition of the nasal discharges, every possible effort should be made to rid these regions of such septic material. One day's experience in any clinic for aural or nasal diseases will tell a convincing story of the results of the exanthemata. Out of 600 cases of ear affections in children reported by Downey,¹ 38 per cent. were found to have originated during the attacks of either measles or scarlet fever. In the writer's experience the tendency to necrosis, either of the ossicles, mastoid process, or of the maxillary bones, seems to be greater when following measles than when resulting from scarlet fever.

So long ago as 1858 the late Dr. Edward Clark, of Boston, emphasized the importance of care of the ear during the course of the exanthemata in these words: "So necessary is a careful attention to the ears that every physician who treats such a case without careful attention to the organ of hearing must be denominated an

¹ Journal of Laryngology, September, 1894.

unscrupulous practitioner." Mild defects in the hearing due to middle-ear catarrh often exist in patients who are wholly unaware of the fact, and only when some new and marked symptom, like tinnitus, appears, do they become conscious of deafness. It has been noticed that tinnitus in this class of cases is more likely to become a troublesome symptom in those individuals who have the uric-acid diathesis, and many times the tinnitus will be relieved by attention to this systemic condition.

That carious teeth often give rise to otalgia is so well known that a mere mention of the fact will suffice. In all cases of severe otalgia the teeth should be examined, and if carious, attended to. The dentition period in child life is also a time when outbreaks of otalgia may be expected.

Rheumatic subjects not infrequently complain of pain in the ears, and in making a diagnosis one should not lose sight of this fact.

CONCLUSIONS. No physician can successfully care for cases liable to be attended with ear complications, with justice either to himself or his patient, unless he has the requisite armamentarium and necessary skill to at least make an intelligent examination of the ear. He should be familiar with the normal anatomical landmarks. The instruments needed are few unless one cares for the more complicated ones.

The ability to make such examinations is also important, because by an ocular demonstration that the organ is in a healthy condition one is able to eliminate what may seem to be an important factor in a given disease.

The treatment of the general condition of patients is often most essential for the relief of ear symptoms, often requiring the combined efforts of the aurist and family physician, such general condition of the patient being due to disease of some special organ, and at other times arising from blood, nervous, or digestive disorders.

Any symptoms of acute cerebral disturbance in patients who have chronic otorrhœa should lead the attending physician to a careful investigation as to whether these symptoms may not be due to extension of the suppurative process into the cerebral cavity.

The discharges from suppurative tuberculous ears should not be overlooked in our efforts to destroy the bacilli.

The removal of lymphoid or adenoid tissue from the pharynx should always be advised, for the preservation of hearing, the

prevention of catarrh of the respiratory tract, and to conserve a healthy physical development.

There should be competent aurists upon the staff of every institution for the deaf and dumb.

Medical inspection of public schools not only to detect disease, but to determine defects of sight and hearing, cannot be too strongly urged. Children with defective sight or hearing, and recent investigations prove that the latter are rather more common, should be given every advantage in the struggle for education. Schaeling says : " The results upon its later mental development of a marked diminution of hearing in a child are, unless compensated for by other instruction, decided and permanent, affecting the understanding, the character, the self-confidence, and, at a later period, the ability of self-support, mental tools the possession of which is valuable, and the want of which can never adequately be supplied."

When we consider the influence exerted by the ear upon human life, its intimate association with all the phases of life, being the messenger of all sounds, from the joyous prattle of innocent childhood to the stern sentence of the judge, from the inspiring music of human voices to the thunderous tones of the great organ and the finer strains of finer instruments, from the dull, discordant, rasping noises incident to great cities, to the cheering songs of birds and homelier and quieter sounds associated with pastoral life, we can but be convinced that, inasmuch as the responsibility for its preservation depends largely upon the members of our profession, we should make every possible preparation to meet the demand.

Every advancement in the science of medicine and surgery, as well as every increase in the knowledge and efficiency of the individual members of the medical profession, means the saving of human life and the alleviation of human suffering.

XXXV. THROAT AND NOSE AFFECTIONS, AND THEIR RELATION TO GENERAL MEDICINE.

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WHEN asked to contribute a paper to this Society I reluctantly accepted, as I felt unable to choose a subject relating to the throat and nose which had not already been presented to you through society meetings and medical publications. In selecting my title I was somewhat influenced by the assertions of many specialists that throat and nose diseases are mostly caused by some local condition, and require only local treatment; furthermore, at a recent meeting of specialists to determine on a subject to present to a body of general practitioners, several gentlemen stated that in their opinion nothing could be selected which would be understood and appreciated by both. This train of thought is, I think, due to the almost universal drift of graduates into some specialty before they have had an opportunity to appreciate the importance of a thorough training in general medicine. Fifteen years ago this was not the case; fewer men had engaged in special work, and then usually only after considerable experience as general practitioners. I hope in the short time at my disposal to show that many affections of the throat and nose originate in some derangement of the general system. For brevity and clearness we may consider these relations from the following stand-points:

1. Their relation to general diseases, such as contagious affections, rheumatism, syphilis, etc.
2. Their relation to chest affections.
3. Their relation to the digestive system.
4. Their relation to the nervous system.

1. RELATION TO GENERAL DISEASES. (a) *Contagious Affections.* The effects of this class of diseases on the upper air-tract are primary and secondary. The former are evident in the rashes, membrane, and acute inflammatory symptoms occurring in these regions in scarlet fever, measles, smallpox, diphtheria, and several other similar affections. Their immediate sequences are not usually serious, but it is extremely important that a correct and early diagnosis be made and that careful and proper treatment be insti-

tuted. For diagnostic purposes bacteriology has been of great assistance to us, but an expert must also be familiar with the local appearances and general symptoms of all contagious diseases. Several innocent rashes resembling in appearance the rashes of scarlet fever and measles are accompanied by throat symptoms which may readily lead to a mistake in diagnosis. For instance, some persons are very susceptible to certain fish poisons, and may develop a temperature and pharyngeal redness with a rash closely resembling scarlet fever. Again, certain persons, subject to recurrent follicular tonsillitis, develop a bright scarlet rash over the chest and back as one of the initial symptoms of approaching tonsillitis. A member of my family had this peculiarity, and it so happened that a number of physicians saw her during numerous attacks, and all at first thought they had a case of scarlet fever with which to deal. The rash in such cases has not lasted, in my experience, more than twenty-four hours, or often a much shorter period, and does not spread beyond the parts stated.

The secondary effects of contagious diseases on the upper air-tract are far more serious than the primary ones, and are more or less directly responsible for most of the conditions which throat specialists have to treat. Many cases of sinus affections, atrophic rhinitis, recurring epistaxis, echondroma, and perforation of the nasal septum date their initial symptoms from an attack of one of the contagious diseases. The presence of adenoids in the naso-pharynx, enlarged pharyngeal, faucial, or lingual tonsils, and granular pharyngitis are frequently never discovered or complained of until the patient has passed through an attack of diphtheria, scarlet fever, or some similar disease. Prior to this attack the tonsils and lymphoid tissue in the naso-pharynx may have been slightly hypertrophied, but not sufficiently to cause any discomfort or particular attention. In many cases the tissue mentioned has been perfectly healthy and normal in size until attacked by the specific inflammatory process. In view of this statement, which must also be the experience of all present who have had opportunities of observing these cases, I would like to ask if sufficient attention is really given to local treatment of the throat and nose during the primary or acute stage of contagious diseases. Furthermore, is sufficient attention given during convalescence, and is it not customary with many physicians to prescribe a gargle or spray and leave the result to time and nature? It is the writer's opinion

that, if more attention was given to local care and treatment of the upper air-tract, a great deal could be done to minimize the disastrous results of contagious affections. I also think that the family physician should watch the children in the families under his care, and if any of them have adenoids, enlarged tonsils, or any other unhealthy condition of the throat and nose, he should give it his immediate attention. If this were generally done, the percentage in diphtheria would be greatly reduced, and much discomfort prevented.

(b) *Rheumatism and Gout.* These diseases are frequently manifested in the throat, and are chiefly of a more or less acute character. In my experience they are more frequently local manifestations of a latent rheumatic diathesis than part of a general attack. The crico-thyroid and thyreo-hyoid articulations and the pharyngeal aponeurosis are often the seat of a subacute rheumatic condition, which causes considerable stiffness and pain in deglutition and does not quickly respond to treatment. Many persons suffer from recurring attacks of acute rhinitis, pharyngitis, tonsillitis, laryngitis, and lingual adenitis, due to the rheumatic and gouty diathesis. These attacks are characterized by the pronounced nature of the pain, redness of the mucous membrane, and the general stiffness and tenderness of the cervical tissues and muscles. Local treatment, with the exception of cleansing the membrane, is useless, and only prompt and persistent internal medication will produce any benefit. Common colds or influenzas are much more severe with these patients, and most obstinate to alleviate.

(c) *Syphilis.* It would seem hardly necessary to more than mention this disease, as it enters so largely into every department of medicine. Nevertheless, there are one or two points, I think, concerning syphilis of the upper air-tract which are deserving of special attention. We must always remember the possibility of a primary infection, as it is by no means uncommon. The diagnosis in these cases is sometimes difficult, as shown by the following case which came under my care last winter. The patient, a man, was brought by his physician, who related that for two weeks his patient had had a small white patch on his right tonsil, from which a culture was made and sent to the State Board of Health. The certificate which the physician brought with him showed the presence of Klebs-Loeffler bacilli. This case was pronounced diphtheria, quarantined, and treatment established, but, no improvement taking place, and the cervical glands becoming swollen, the case

was referred to me. No history of possible contagion of syphilis could be ascertained, although the patient was educated and seemed anxious about his case. I prescribed mercury, and the patient showed immediate improvement and was well in a week. Hereditary syphilis frequently causes perforation of the septum and of the soft palate.

The nature of these affections is often overlooked in the absence of a personal history. Two cases recently came under my observation without any history of syphilis, but with complete loss of soft palate and tonsils, with a diagnosis of tuberculosis and lupus respectively. The administration of potassium iodide had also produced no result. Both recovered on specific treatment combined with the administration of freshly prepared Blaud's iron mass. The latter I consider very important in the late and ulcerative stages of syphilis. I think that the saturated solution of iodide of sodium produces much less unpleasant symptoms on the upper air-tract than the potassium salt. Very late syphilitic neoplasms of the larynx are sometimes mistaken for malignant disease, as they do not yield readily to iodide. At least three cases have come under my notice which had been pronounced malignant disease, and it was entirely due to accidental circumstances that each larynx had not been removed. I wish to lay special stress on this point, and I believe that some of the very early cases of cancer cured by operations never were malignant.

2. RELATION TO CHEST AFFECTIONS. The structural relation and position of the respiratory organs make it extremely probable that their affections would be interdependent, to a more or less degree, and undoubtedly some conditions of the upper air-tract are secondary to or dependent on a chest affection. Again, diseases in the latter situation may originate in the upper respiratory organs. How often does influenza or coryza spread in a few days to the larynx, trachea, and upper bronchi, and in children frequently passes to broncho-pneumonia. Again, subacute laryngitis occurs in some persons concurrent with an attack of bronchitis, and may last a considerable time after all evidences of the bronchial affection have subsided. Chronic bronchitis is frequently accompanied by a general thickening of the mucous membrane of the trachea and nasal chambers, constituting in the latter case a fibrous rhinitis. Violent coughing, the result of some chest irritation, often results in a subacute pharyngitis and laryngitis.

Tuberculosis of the larynx is in most instances secondary to a similar pulmonary affection, and is one of the later complications. The throat invasion as a primary disease is exceedingly rare and it is in a short period followed by pulmonary symptoms. I have seen two cases which seem to have had the first infection in the upper air-tract. In one of these cases, which I have already reported, the initial lesion was in the naso-pharynx and spread gradually downward along the lateral pharyngeal folds, invading the faucial tonsils, lingual glands at base of the tongue, larynx, and eventually the lungs. The second case was in a contractor, aged fifty-two years, whose family and personal histories were excellent until the attack which terminated in tuberculosis. He caught a cold which resulted in a severe laryngitis. This improved under treatment, but he again took cold, and, after some months, although there was no evidence of pulmonary trouble, the laryngeal affection grew rapidly worse and developed tuberculosis, which later passed to the lungs and caused death.

Neoplasms of the chest often produce paralysis of some of the laryngeal muscles, while neoplasms or any obstruction of the nasal chambers may cause a very irritable condition of the pharynx and larynx as a result of the necessitated mouth-breathing. In children similar nasal conditions readily produce deformities of the chest.

3. RELATION OF DIGESTIVE SYSTEM. There are probably few more frequent causes of throat and nose derangement than some affection of the digestive system. I believe also that this intimate relation is often overlooked, and much unnecessary local treatment prescribed, when regulation of the diet, exercise, and some simple laxative would meet the indications. How often we see extremely robust and healthy persons who constantly clear their throats and complain of a full or tense feeling around the base of the tongue which they cannot relieve by coughing. These symptoms are much aggravated after eating or during excitement, and in nine cases out of ten, in my belief, are produced by stomachic, intestinal, or hepatic derangement. The local throat condition in these persons presents a variety of appearances. In some the vascular supply seems to be the chief source of derangement, and the vessels of the pharynx, soft palate, and especially those around the root of the tongue are large, tortuous, and engorged with blood. The lingual veins present this condition to a marked degree, and may be seen behind the epiglottis either as large, blue, varicose masses, or as

an extremely fine network of bright-colored vessels, some dotted with minute aneurismal-looking masses, which occasionally bleed. This condition is chiefly the result of hepatic inactivity, and, except in cases of long standing, is readily relieved by regulation of diet, calomel, and saline purges, with either walking or horse-back exercise. In another class of patients both the glandular and vascular systems seem to be involved, and again in another the glandular system alone is implicated. In these persons the glands and adenoid tissue around the root of the tongue are increased in size and number, and vary from numerous watery-like masses to two or three large sessile tumors, the latter bearing a marked resemblance to the faucial tonsils. The causes of these two conditions are entirely different. The combination of increased vascular and multiple glandular tissue is due to a sluggish and engorged digestive and portal circulation in patients with a rheumatic, gouty, or uric-acid diathesis. The usual local treatment employed alone gives only temporary relief, while the vascular and especially the glandular tissues continue to recur until suitable internal remedies are given to correct the accompanying diathesis. This may also account for the cases of recurring adenoids which are occasionally reported. The large, lingual, tonsillar masses already mentioned originate from causes similar to those which produce hypertrophy of the faucial and pharyngeal tonsils. Their removal also brings effectual relief, and they are not likely to recur. Many cases of shortness of breath, wheezing, etc., can be traced directly to these lingual masses pressing the epiglottis backward over the glottis. In some this is so marked as to bring on spasm of the glottis in varying degree.

The writer had one patient in whom this proved nearly fatal. For years this patient had more or less stomachic and intestinal indigestion, causing what he styled "catches in his breath." These symptoms gradually increased in severity until the slightest nausea produced spasm of the glottis. The night previous to my seeing the patient he had taken several pieces of chocolate, and was awakened out of a sound sleep by the nausea and difficult breathing. The latter became so severe that, when I examined him after the attack was over, the whole front of his neck bore the imprints of his nails where he had clutched his throat in his efforts to obtain relief. The epiglottis was found pushed backward over the glottis, the vessels blue with engorgement, and the glandular tissue and mucous membrane considerably swollen and covered with profuse

secretions. Very little local treatment corrected the pharyngeal and lingual condition, and internal medication was administered for some time, until all the digestive symptoms had subsided. The patient never had another attack since the general treatment was instituted, which is now over three years. The writer has seen other similar cases with less marked symptoms. Many forms of hypertrophic rhinitis have a digestive origin and may be readily relieved by suitable internal medication.

4. RELATION TO THE NERVOUS SYSTEM. Aphonia, cesophageal stricture, and dysphagia of hysterical origin are not uncommon. Tickling and dry sensations in the throat are also recognized as being part of a general neurosis. Reflex nasal coughs and headaches sometimes occur, but are by no means as frequent as some writers would lead us to suppose. Headaches, when of nasal origin, are more likely to result from improper drainage or some disease of one of the numerous sinuses connected with the nasal fossæ. Several cases of epilepsy are also reported as cured by the removal of some nasal pressure. Hay-fever, rose-cold, and intermittent rhinorrhœa are probably the most important nasal affections connected with a general neurosis. The relief afforded these patients by local nasal treatment, either medicinal or operative, is by no means certain or permanent. From the local nasal appearances of some patients you might expect considerable result from operative measures, and later share with the patient a great disappointment from the failure of the treatment. However, it is my custom with these patients to give them as good breathing space as possible between their attacks, and to rely chiefly on internal medication for the greatest relief. Cinchonidia and its salts produce a most profound influence on the nasal reflexes, and there are few causes of hay-fever or similar conditions which may not be relieved by the selection and administration of the proper salt of cinchonidia.

In concluding this paper I wish to mention that there are several conditions of the general system due to nasal trouble which, owing to short time at my disposal, have not been dwelt upon. Nevertheless, I think enough has been said to show that we must not confine ourselves along too narrow limits in this specialty.

General practitioners must not treat lightly the effect of nasal and throat trouble on the general health, both in adults and in children. Neither must the throat specialists forget that internal medication will meet the indications in many of their cases.

XXXVI. CASES OF ACUTE NON-DIPHTHERITIC INFLAMMATION
OF THE LARYNX, REQUIRING THE PROLONGED RETEN-
TION OF THE INTUBATION-TUBE.

BY JOHN O. ROE, M.D.,
ROCHESTER, N. Y.

THE following cases of acute laryngeal obstruction, requiring the prolonged retention of the intubation-tube, are of special interest as illustrating some of the unusual inflammatory conditions of the larynx requiring intubation, which at any time may be met with, independent of diphtheritic inflammation.

CASE I.—A healthy boy, thirteen months old, awakened from his sleep about nine o'clock on Thursday evening, April 1, 1897, with a slight croupy cough. Happening to be in the house at that time, I was at once requested to prescribe for the child. As it was apparently the result of a slight cold, I prescribed accordingly. The next day the child was slightly worse and began to have some impediment to respiration. This condition slowly increased, although there was no marked elevation of temperature. Dr. Ely, of Rochester, saw the case with me, and we both concluded that it must be a case of laryngeal diphtheria. This opinion, however, was not supported by the bacteriological examination, for no diphtheritic bacilli were present, numerous micrococci only were found, such as are associated with acute mucous inflammations. The child's dyspnoea increased, notwithstanding every effort at medication, both local and constitutional, and on Sunday evening the breathing of the child became so much embarrassed that I introduced a laryngeal tube. Shortly after the introduction of the tube, as is often the case after intubation, the temperature began to increase, and more active constitutional disturbance became manifest.

On the following day the temperature rose to 103.5° F., and the child was so ill that Dr. Ely and I both thought that diphtheria must have developed since the previous bacteriological examination. Accordingly, another culture was made, the examination of which also showed no evidence of diphtheria. On the following day the temperature began to subside somewhat, and the child began steadily to improve. On the fourth day I removed the tube, for, if it were a case of simple acute laryngitis, it ordinarily would be required no longer. Six hours later, however, it was necessary to reintroduce the tube. The child got on very comfortably and steadily improved in every way, and four days later we again attempted to dispense with the tube, but the following day it had to be again replaced, the child having this time gone twenty-four hours without it.

For the first few hours after the tube was removed the respiration was very free, but after a time the breathing began to be embarrassed until it was seen that the tube was absolutely necessary. The tube was now per-

mitted to remain in the larynx until one week later, when it was coughed out. This time we got on fairly well without the tube for twenty-seven hours, there being but slight dyspnoea; but, as the child was so much more comfortable with the tube than without it, it was again inserted. On April 19th the tube was coughed out at 2.10 in the morning, and we were obliged to reinsert it at 3.30 that afternoon. On April 21st the tube was again coughed out at 6 o'clock in the morning and reinserted at 10 o'clock that evening. On April 22d the tube was coughed out again at 11.20 P.M., and reinserted at 4 A.M. the following morning. On April 25th the tube was coughed up and swallowed, and a larger tube was inserted an hour and a half later. On the 27th the tube that had been swallowed was passed by the child without the slightest difficulty.

The tube which up to this time had been used was the size usually adapted to children two years of age. Notwithstanding the fact that it was coughed up frequently, I hesitated to use a larger tube, for the reason that undue pressure in the larynx might cause sloughing and serious results ensue, and also that each time it was inserted we hoped and expected that it would be the last time necessary. The tube, however, became so loose and the dyspnoea so persistent that a larger tube was positively required. This larger tube the child was unable to cough out, and it was allowed to remain one week, when I removed it. The child for a short time was very comfortable without the tube, but soon it began to have more or less dyspnoea, and in twenty-four hours afterward its reinsertion was necessary. The tube was then allowed to remain for two weeks, or until May 16th, when the child coughed it up into its pharynx, and the nurse extracted it with her finger, as I had instructed her to do in case of such an emergency. This saved me the trouble of removing the tube, which I was expecting to do on the following morning. After this the child got on without the reintroduction of the tube. For the first few days, however, the child was hoarse and had some dyspnoea from the accumulation of mucus in the larynx, but on coughing this out its respiration became quite free. Various medications were used by us (Dr. Ely having seen the case with me all the way through), but the remedial agents that seemed to have the most beneficial effect were counter-irritation and applied blisters externally to the neck and mercurials used internally.

The child made a good recovery, and has since remained perfectly well, not even being hoarse nor manifesting any laryngeal irritation. At times, however, after violent exertion from running or playing hard, he has a little dyspnoea, as if there might be some slight contraction of the larynx.

A case somewhat similar to this has come under my observation, a patient of Dr. Cady Harris, of Rochester, whom I saw in consultation on two different occasions.

CASE II.—The patient, a little girl, three years of age, had been perfectly well until about February 13, 1897, when she contracted measles, which on February 16th was well developed. The child was only moderately sick, but there was more hoarseness and cough than are usually associated with

measles. One week later a thin membrane was seen over both tonsils, but which, in two days, entirely disappeared. The child grew worse until on March 1st the doctor requested me to see the child. I succeeded in making a very satisfactory laryngoscopic examination, and found the interior of the larynx filled with a profuse mucous discharge, but no membrane was present. There was some cedema of the larynx, causing considerable dyspnoea, and although no membrane was present it looked very much like a modified form of laryngeal diphtheria. Accordingly, antitoxin was at once used without waiting for the bacteriological examination, but with no benefit. The examination of the culture, however, showed no diphtheria, it being, therefore, a case of simple subacute laryngitis.

The laryngeal obstruction continued and slightly increased until intubation was necessary, Dr. W. B. Jones, Dr. Harris's neighbor, inserting the tube.

On March 7th, four days later, the tube was coughed out, but was reinserted by Dr. Jones as quickly as possible, owing to the intense dyspnoea. On March 17th the tube was removed, but reinsertion was necessary two hours later. On March 21st the tube was coughed out and remained out twelve hours. On March 23d it was again coughed out, but owing to the intense dyspnoea that immediately arose the tube had to be reinserted as quickly as possible.

The child's general condition during all this time was very good, and at no time was there any marked rise in temperature, and there was no difficulty in taking nourishment. She was then permitted to go out, and on April 8th Dr. Harris brought the child to my office to see what we could do about removing the string which had been left attached to the tube and fastened around her neck. The string was her constant anxiety, for fear that by some accident the tube would be pulled out. I advised first that the string be removed with the child under chloroform, when on awakening the child would find she could get on without it and would give us no further trouble in that direction. This was done, with the anticipated result. On April 11th the tube was again coughed out and a fresh tube inserted, as this one had become somewhat corroded. April 18th Dr. Jones removed this tube with the child under chloroform, and reinsertion was not required.

At first the child was completely aphonic and coughed a great deal, but the respiration was not at any time seriously embarrassed. Hoarseness continued for a time, but the child made a good recovery.

These cases were surprisingly similar in their behavior; the latter case followed measles, while the former apparently originated *de novo*, one requiring the retention of the tube six and one-half weeks, and the other nine weeks. A number of cases have been reported where it has been difficult to dispense with the tube following attacks of diphtheria. In these cases it has usually been the result of erosion of the tissues by the localized diseases or by the tube causing granulations to spring up, which would drop into the larynx and obstruct the glottis during inspiration on the with-

drawal of the tube. In some cases O'Dwyer¹ attributes this condition to the injury of the larynx by amateurs during the introduction of the tube, although inflammatory thickening must play the most conspicuous part in these cases.

The danger from employing a tube too large for the larynx, which I studied to avoid in the cases I have reported, is illustrated by the following case reported by O'Dwyer.²

CASE III.—A child, about two years old, was intubated for croup at the New York Foundling Hospital. After a few days the tube was coughed out, when the 3 to 4 size was substituted; but this was also repeatedly expelled, and the 5 to 7 was introduced. A special tube with extra large retaining-swell was now ordered, but before it could be procured the 8 to 10 size had to be used, as the 5 to 7 would be retained for only a few minutes at a time. The special tube was also rejected several times, and the child finally died before the house-physician had time to reach it and to reintubate. The autopsy showed complete destruction of the cricoid cartilage, only a few necrotic fragments of which were still in place. The considerable space between the thyroid cartilage and the first ring of the trachea, having, therefore, lost its support, collapsed as soon as the tube was displaced, thus preventing the ingress of any air whatever.

These cases which I have reported are of special interest as illustrating a rare form of laryngeal stenosis following simple laryngitis, uncomplicated with diphtheria, requiring the retention of the intubation tube for a long period of time and followed by complete recovery of the patients.

XXXVII. INTRATRACHEAL INJECTIONS FOR DISEASES OF THE BRONCHI AND LUNGS.

BY HENRY S. DRAYTON, M.D.,
NEW YORK.

So many have been the disappointments of the profession with regard to the discovery of a remedy for tuberculosis in late years that it is but natural that any suggestion of a new composition or process for its treatment should be received by experienced physicians with scant courtesy. I shall not occupy time unnecessarily

¹ Annual of the Universal Medical Sciences, 1895, vol. iv., Sec. E., p. 9.

² Loc. cit.

by a review of even recent methods, but proceed to the consideration of the subject of this paper—*rem, non verba, quæso*.

It should be noted in the outset that the idea of intratracheal injections for the relief of affections of the respiratory passages is not new. In 1840 Dr. Horace Green, of New York City, announced that lung diseases could be treated by local applications, and experiments and observations made by him during more than twenty years have been recorded.

In a paper read before the Medico-chirurgical College, December 22, 1859, Dr. Green said: "Such has been the amount of success which has continued to attend this plan of treatment that I am now ready to affirm, after an experience of many years in a field of observation unusually large, that if I were required to relinquish all other known therapeutic measures or topical medication in the treatment of thoracic diseases, I should choose the latter with hygienic means alone in preference to the entire class of remedies ordinarily employed in the treatment of these diseases."

His reports of results obtained found, however, no fallow-ground in the minds of his fellow-practitioners; rather, censure and condemnation. He was accused of resorting to a cruel and unnecessary procedure, and his claims of having benefited many by applications of nitrate of silver to the tracheal membrane were sneered at as the impudent boast of a quack. Indeed, the possibility of any practical use being made by the tracheal and bronchial surfaces of medicated solutions that could be introduced below the larynx, without choking the patient, was doubted by eminent physiologists until as late as 1883, when Bergeron, of Rouen,¹ showed by experiments on animals that such liquids were tolerated. Later experiments have proven beyond doubt that the pulmonary mucous membrane does absorb liquids, and, under certain conditions, irritating solutions may be carried deeply into the bronchial passages without causing any respiratory disturbance.²

Having disposed of such prejudicial impressions as the supposed hyperirritability of the tracheal membrane and the non-absorptive nature of the bronchial mucous surfaces, there is but one other objection to the general employment by physicians of the method of treating diseases of the larynx, trachea, bronchi, etc., by direct applica-

¹ Lyon Médical, October 7, 1883.

² See Kirke's Physiology, ed. 1892, also Medical Record, October 10, 1885, for some account of experiments by Dr. Pernice on animals, showing their toleration of solutions injected into the trachea.

tions, and that is the difficulty of manipulating the proper instruments. This difficulty must be recognized; yet a steady hand, proper illumination of the throat, a clear knowledge of the pharyngeal and laryngeal anatomy, and practice should enable the majority to do most of the coarser kinds of work required in treating the upper respiratory parts. The principal reason, as one surgeon has indicated, for the slow advancement of the intratracheal procedure is that the great majority of physicians appear to consider all affections of the nose and throat as local and having little influence upon the health of the patient. This lack of a proper estimate of the importance of these affections may be credited largely for the neglect of direct medication.

Dr. J. L. Barton, of New York, in a paper read before the Laryngological section of the Academy of Medicine early in 1896, summarizes the experience of two years in the employment of the intratracheal treatment in hospital and private practice.¹

Dr. Barton and the writer were associated in clinical duty for several years, and many of the cases referred to by Dr. Barton came also under my observation and for occasional treatment of the same nature. Hence, in the discussion that followed the reading of that paper, my testimony could scarcely be other than confirmatory, as was reported by the medical press.

It should be stated that Dr. Joseph Muir, also of New York, who has been one of the earnest few to advocate this treatment, and who, in his service at the New York Throat and Nose Hospital, has applied it to a large number of patients, merits particular mention in this connection. Dr. Muir designed a syringe for the special work, having a capacity of four drachms; this quantity of medicament, and even more, being tolerated comfortably by some patients, although in my opinion it is rarely necessary to inject as much.

An aspirating syringe or large hypodermatic syringe fitted with a proper laryngeal tube will be sufficient for most cases, care being taken that the fittings are accurate and strong, and that the piston can be worked smoothly by one hand.

As for the procedure, which to the deft hand is comparatively simple after a little practice, at first the patient may not control the muscles of the pharynx so as to render the operation easy, both

¹ Medical Record, August 1, 1896.

pharynx and larynx being hyperæsthetic. In this case a spray of cocaine in 2 per cent. solution will relieve the irritability. I have found it rarely necessary to use any anæsthetic, a little mouth education securing the self-control requisite for a successful application. It not infrequently happens that the cocaine effect, despite the low percentage of solution, is very unpleasant or over-exciting to a timid, nervous person, although such effect may unusually be obviated by judicious management.

The syringe having been charged with the quantity of medicine that is to be thrown into the trachea, the patient is instructed to sit upright, to grasp the tongue with the fingers of the right hand, using a piece of clean gauze for a firm hold, to throw the tongue well forward, at the same time opening the mouth widely and throwing the head well back.

An experienced operator, after a careful survey of the laryngeal field with the head and throat mirrors, may make a thorough injection without employing the throat or laryngeal mirror. But on account of the rather tortuous approach to the trachea in the case of many patients, it is best to use the glass, so that the pipe of the syringe shall be introduced with certainty, and the application reach the diseased parts.

I recall a self-sufficient young practitioner who had attended a few hospital clinics and seen a little of throat treatment, and who attempted to make an application of argentum nitrate, 12 per cent. solution, to the ulcerated larynx of a patient without having previously made an inspection of the site of the trouble, and without the use of a throat glass. Of course, such temerity deserves only severe condemnation. Usually, then, the surgeon holds the throat mirror in place with one hand while he operates the syringe with the other. Having the field in view, the patient is directed to breathe, the cords separate, the tube is quickly inserted between them, enters the trachea, and the contents of the syringe are discharged, centrally or to one side, as it may be desirable in order to produce a special effect in the right or left bronchial divisions.

When care is taken to avoid touching the parietes of the throat, and especially the epiglottis or the laryngeal borders, comparatively little irritation will be experienced by most patients, even at the beginning of the treatment. After a few experiences of the method my patients, for the most part, exhibit little if any positive discomfort, and I may make three injections of a drachm each at one

sitting, if as many be considered necessary. Much more than a drachm may be given in one injection, some patients taking comfortably even half an ounce.

The principle governing the treatment is to furnish the tissues of the breathing organism with such material as will operate adversely to the development of disease elements *per se*, the bacteria of consumption, bronchitis, and other affections, and at the same time promote the exercise of the respiratory function. The remedies employed should be so compounded as to have a soothing, agreeable effect, while at the same time there are properties of antiseptics and mild stimulation exhibited in their action. Of the substances employed by myself and others in the city of New York in treating disease below the larynx, olive oil, glycerin, benzoinol, guaiacol, rose oil, euclophen, oil of cinnamon, menthol, pinol, eucalyptol, camphor, creosote, are among those preferred at present. In the New York Throat and Nose Hospital, Drs. Muir and Barton have had most gratifying success in this form of treating tuberculosis. In the dispensary for the treatment of throat diseases at Bellevue Hospital Dr. Barton and the writer have been associated for several years, and the large number of patients coming to our clinic gave the opportunity for testing this treatment. In a majority of the more severe cases the relief afforded from cough and throat tenderness was almost immediate, while early cases were nearly all quite cured or markedly improved.¹

Dr. Thompson, of Cincinnati, presented a paper before the American Laryngological Society, in May of last year (1897), on the subject of intratracheal injections in the treatment of laryngeal and pulmonary affections, and reports from his experience the happy results of such method. He justly refers to the common failure of medication by the mouth in such affections, no matter what the remedy, because of the changes produced by the gastric and intestinal secretions upon the elements of the swallowed remedies. No one can fairly estimate the effect of stomach fluid, for we know it to contain powerful resolvents, and likely to decompose almost any combination, and produce other and quite different compounds from those swallowed.

One important advantage, then, of direct tracheal treatment is that the remedy itself is applied to the locality of disease, and its

¹ See article in Medical Record, August 1, 1896, for a record of ten cases, several of which were under my own observation.

effect is observed with much promptness, and that obtained without disturbing the digestive organisms.

Other treatment is, of course, not precluded by this method, be it internal or external. Remedies for promoting the functions of the general system may be prescribed. The injection hypodermatically of any favorite *serum* or antitoxin may be associated; or inunctions, or baths, or massage or any form of gymnastics that is favored. The use of sprays, atomizers, and inhaling apparatus may be productive of excellent results, for by such means a small amount of medicine can be drawn into the pulmonary spaces and have a local effect. Such treatment at home may be very helpful as an adjuvant to the injections. The special value of the latter, however, is that a sufficient quantity of the remedy may be introduced at once into the trachea for the purpose of relieving the irritated mucous membrane and reducing materially the catarrhal congestion of the bronchi and alveoli.

Certain particulars, as noted by my colleague, Dr. Barton, commend the treatment, viz.: "It immediately alleviates the most distressing symptoms, adding at once to the comfort of the patient." "In cases characterized by an atrophic condition of the tracheal mucous membrane, or of pulmonary disease with cavitation tending to retention and decomposition of the secretions, intrabronchial injection will remove the distressing fetor of the breath consequent upon this condition."¹

My preference is for the following elements in the composition of the solution so far used—menthol, ichthyol, guaiacol, and eucalyptol, the proportion of these varying to suit the case. Benzoinol or albolene is the vehicle commonly employed to carry these, and euophen, the readily soluble antiseptic, is added in quantity from 1 per cent. to 2½ per cent. Guaiacol may be substituted for the euophen, especially in advanced cases of tubercular consumption. Care is necessary to obtain the guaiacol prepared from beechwood creosote, as the coal-tar product has not the properties desired in the treatment. The proportion of guaiacol is about 2 per cent.; of menthol, 1 to 15 per cent., the latter being used only in exceptional cases, as it is very strong.

Let it be understood that this treatment is not offered as a specific for pulmonary consumption. No pretence of the sort is intended,

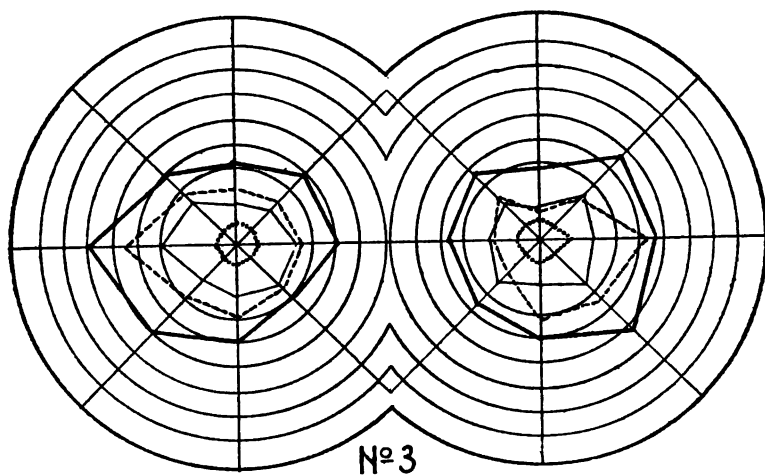
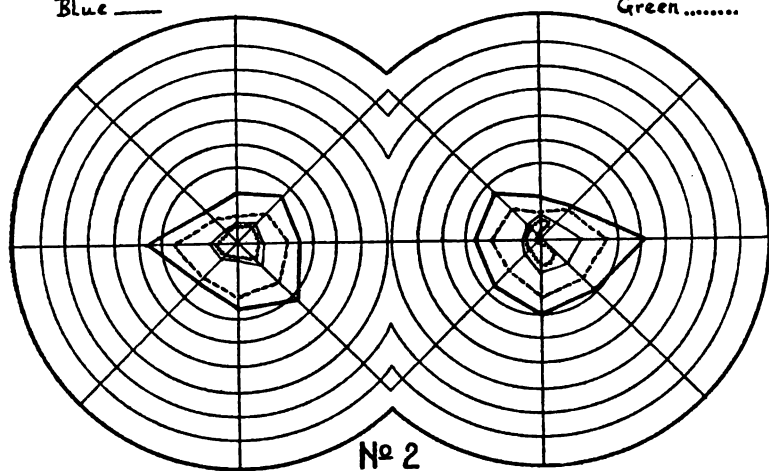
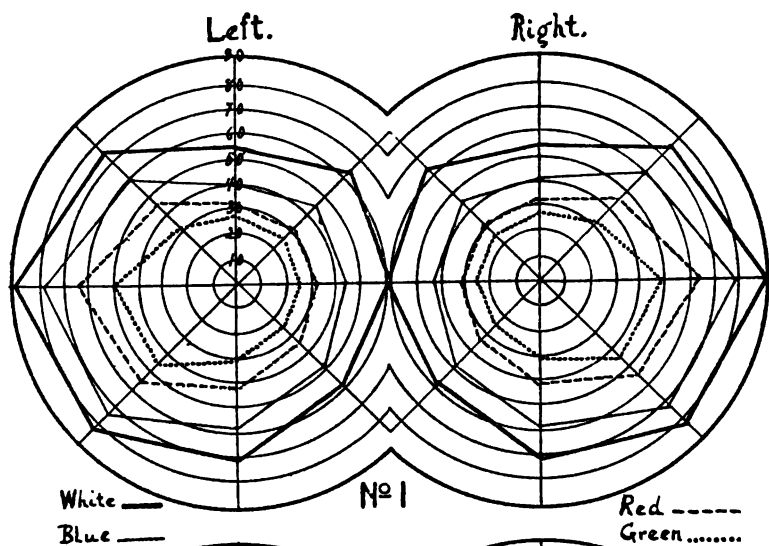
¹ Diseases of the Trachea, Bronchi, and Lungs treated by Intratracheal Injection. Monograph by Joshua Lindley Barton, M.D., New York, 1897.

however earnest may be the tenor of my remarks concerning its remedial effects. Albeit, I am satisfied of its helpful effects in the early stages of this dreaded disease, and as a good percentage of my patients are now in the enjoyment of good health and able to pursue comfortably their respective occupations, whereas before this particular form of treatment they had been steadily losing ground, and for the greater part offered symptoms of a discouraging character, I feel warranted in attributing their improvement or recovery to it as the prime factor.

XXXVIII. THE REPORT OF AN UNUSUAL CONTRACTION OF VISUAL FIELDS AND DISTURBANCE OF THE COLOR-SENSE FOLLOWING AN INJURY.

By T. F. C. VAN ALLEN, M.D.,
ALBANY.

C. N., American, aged thirty-six years, by trade a painter, was injured in April, 1893. He was engaged in painting, when a heavy scaffold, some fourteen feet above him, gave way, and he was buried beneath the timber and planking. His injuries consisted of a dislocation of the right shoulder, a fracture of the right humerus, severe bruising of right leg, several scalp wounds of the right side of head, and a cut on the left side of head at the upper posterior temporal region. There were no evidences of fracture of the skull. The eyelids soon became swollen and ecchymosed on both sides, but when the lids were separated there was no marked ecchymosis of the ocular conjunctiva, and vision seemed good. The patient made a slow recovery. He was able to get out of bed in three weeks. He tried to use his eyes for reading five weeks after the injury, when he found they pained him, and the print became blurred after three or four minutes; he did not at this time notice any impairment of visual acuity. The patient was unable to do any work for five months, and it was one year and nine months before he could accomplish a fair day's work at his trade. He sued the company in whose employ he was at the time of the accident for damages, and his legal advisers sent him to me for the purpose of deciding how much visual damage he had sustained. The history so far given was gleaned from the patient and from the surgeon who had attended him. He came to me October 3, 1893, about six months after the accident. He had noticed—as before stated—that five weeks after the injury he could read the newspaper but three or four minutes before the print became blurred and his eyes began to pain him. This condition continued, but was not now quite so marked. Some five weeks previously he first noticed that he could not see distant objects as clearly as he once could, the dis-



ability being most marked in the right eye. Two weeks ago he first had his attention called to an inability to properly match color; he had commenced painting a door with green, and when he finished the work, after a noon hour's interval, he completed the painting with blue, believing that it perfectly matched the green. When his attention was first called to the blunder he insisted that the surface was of an unbroken green color, but as he studied it carefully he found there were some lights and some positions in which he could detect the mistake. There was nothing in the family history that had any bearing on the ocular condition. The patient was not a user of tobacco or alcohol; had never had an attack of lead colic or paralysis; stood well with the eyes closed; and the patellar tendon reflex was normal. Inspection showed healthy conjunctiva, cornea, and iris on both sides; the pupils reacted normally to light and accommodation. Intra-ocular tension was normal. Visual test showed right eye 20/XL, not improved by lenses; left eye 20/xxx, not improved. He could read Jaeger's No. 1 at ten inches with either eye, but tired very quickly. Light sense, as tested by drawing down the window shade and continuing the test on the Snellen letters, was shown to be considerably impaired. The balance of the extrinsic ocular muscles was normal. Ophthalmoscopic examination was negative, save that it was thought that the temporal half of each disk showed a trifle of hyperæmia as compared with the nasal. Wernicke's test showed that neither pupil responded to the reflected light until the mirror was brought within the area of the contracted visual field. The results of perimetric examination evidenced great contraction and disarrangement of the color fields. In regard to any simulation on the part of the patient, it could be absolutely excluded, as he was examined on two different days; the location of the perimeter frequently changed, and he had never had his visual fields tested previous to this time. (No. 1 of the diagram shows the normal visual fields for white, blue, red, and green. No. 2 shows the patient's fields when tested on October 3 and 4, 1893.)

Each field was not only tested for its greatest limit, but within its boundaries for scotomata, and none were found save at Mariotte's blind spot. It will be seen that the contraction of the field recognizing a moving object 12 mm. in diameter was very considerably reduced, and quite symmetrically so. The next field normally is blue; this was very much contracted, so that it was far within the field throughout which red was seen; the red field, while contracted, was less affected than any other. The field for green of the left eye was much like that for blue, but with the right eye green was not appreciated at the fixation, but was called blue until it entered such an area as is represented in the chart. The color-tests were made with small pieces of paper, both of 12 mm., and 5 mm. square, attached to a hard rubber rod. If the patient were given a sheet of blue paper he recognized it as blue with either or both eyes. If handed a sheet of green paper he hesitated and generally called it another shade of blue; this when he had both eyes open; if he moved the paper toward his left side until the bridge of the nose shut out the right eye, then he recognized it as green; if he moved it toward his right side until the left eye was similarly excluded, the green became blue. He could tell the color correctly when the right

eye was covered, but could not when the left eye was, unless he fixed ex-centrally.

The fields of vision vary considerably with the individual and with the manner of testing. The proportions of color-fields vary in extent, but in the normal eye the arrangement of blue, red, and green does not change, though red may occasionally approach quite near to blue in extent. The failure of color perception in atrophic cases is first for green, then for red, and last for blue and yellow. The central scotoma for green is a well-known diagnostic point in alcoholic and tobacco amblyopia. In the case reported the optic disks had no appearance of atrophy, and alcohol and tobacco as causal factors could be excluded. The peculiar field for green in the right eye might suggest a central scotoma for green, added to the contracted green field, but this could scarcely be proven.

The writer has nothing new to offer in the elucidation of that obscure subject, color perception, but simply reports a rather rare case. The opinion expressed in this case was that the trouble was largely functional, and while vision and color perception might never become normal, still both would improve. This opinion was based largely upon the condition of the visual fields for blue and red, as shown by the perimetric test. Charcot first pointed out that a contraction of the field for blue, until it reached the limits of the red field or passed within it, associated with a general contraction of the visual fields, was often purely functional, frequently noticed in hysteria, and often lasted for years. There has been singularly little written upon the reliability of this in diagnosis and prognosis. I believed my patient's visual condition was largely the result of concussion and nervous shock, and it was of much satisfaction to me that I was able to make another careful examination of the patient after a lapse of over four years. The vision of the right eye is 20/xxx, of the left eye 20/xxx +. The visual fields are shown in No. 3. It is noticed that the field for white is very much greater. The field for blue, while still inside that for red in the left eye, in the right eye extends beyond the border of the red in the nasal and upper portions of the field. The field for red is not very far from normal. The condition of the green field shows little improvement in the left, but much in the right, where the fixation is restored. There is little complaint made of the vision at this time, save that it is difficult for him to

match shades of green when the light is at all poor. The green blindness at the fixation point of the right eye lasted, the patient tells me, about two years.

XXXIX. THE TREATMENT OF RHACHITIC DEFORMITIES.

BY REGINALD H. SAYRE, M.D.,
NEW YORK.

So much has been written in regard to rickets and the treatment of the deformities caused by this disease that you may wonder at my occupying your time by the presentation of this subject. But it has seemed to me that since the introduction of osteotomy the majority of the medical profession have come to look upon rhachitic deformities as something to be left to themselves until the stage of hardening has arrived, and then to be treated by a cutting operation, and have overlooked the fact that many of these cases can be prevented from reaching the stage of deformity by proper protection and by attention to diet and hygiene.

To consider the subject systematically, I would call your attention to the very slight knowledge which we possess as to its etiology, and emphasize the fact that, although it is generally accepted at the present time, that rickets is a disease caused by malnutrition, bad air, and unhygienic surroundings, there is, in addition, some underlying factor which is, as yet, undetermined, and which causes some of those exposed to these conditions to develop rickets, while many others, in precisely the same surroundings, fail to do so. It is vastly more prevalent in our large cities, among the tenement population, but a much larger number of cases than is usually supposed can be found among the well-to-do and among those living in the country, and in a very large number of the cases which have come under my observation the children have been fed upon some one of the various baby-foods which are to be found in the market.

The experiments of Cheadle are very interesting as bearing upon the effect of diet. In the zoological gardens in London numerous litters of lions had successively died, with all the manifestations of rickets, having been fed upon old horses, whose flesh was very lean and dry, and whose bones were too hard for the young cubs to eat. Upon changing the diet of a subsequent litter of young lions

to milk, powdered bones, and cod-liver oil, they became lively, the symptoms of rickets disappeared, and they grew to maturity, the only change in their mode of life having been the altered diet.

In these same gardens young monkeys, taken from their mothers and fed on a vegetable diet, chiefly of fruits, became rhachitic. Two young bears who were fed upon rice biscuits, occasionally with lean meat, which they rarely ate, died of extreme rickets while still young. In all of these cases fat, proteids, and lime salts were practically excluded from the food.

Heitzman, by feeding and injecting lactic acid into dogs, cats, rabbits, and squirrels, and at the same time restricting the administration of calcareous food, caused curvature of the bones of the extremities, with enlargement of the epiphyses, the bones becoming very flexible, inflammations of the conjunctiva, bronchi, and intestines also taking place. Drawing deductions from these experiments, he was very zealous in advocating the presence of an excess of lactic acid as a cause of rickets. But in many cases of rickets we do not have this excess of lactic acid, and this is a great objection to the acceptance of this theory of its causation. The dietetic origin of rickets seems much more probable, and there seems to be a failure on the part of the system either to receive or else to digest and assimilate some of the most important tissue-building substances, especially fat, phosphate of lime, and the proteids. In the majority of cases the trouble appears to lie in the fact that a sufficient amount of these substances is not ingested, while in others there is a failure of proper assimilation, the cause of which is not at present precisely understood.

Passing by in this paper the changes which occur in other structures of the body in consequence of rickets, let us consider the effect which it has upon the osseous system. The long bones of the body, which are chiefly affected in this disease, grow in their length by proliferation of cells from the epiphyseal cartilages, and in their diameter from the inner surface of the periosteum. In rickets there is what may be regarded as a low grade of inflammation of the epiphyseal cartilages and periosteum. The cells, instead of being arranged in a regular manner, with the ordinary segmentation and proliferation, increase to many times the normal amount, and, instead of the proliferating layer of cells being a single line, almost the whole epiphyseal cartilage is involved. The same increase in proliferation takes place all along the inner surface of the

periosteum, and the bloodvessels increase in size to a most enormous extent. The Haversian canals increase very largely in their diameters, extending from the border into the proliferating zone of cartilage. The process of ossification is much retarded, and in many cases absolutely arrested, and the layer of hard bone intervening between the medullary canal and the external layer of proliferating cells is gradually absorbed by encroachment on both sides, causing the bone to become more and more flexible. In the latter stages of the disease the process of ossification, which has been heretofore retarded, proceeds with great rapidity, and the previously flexible bone takes on an undue hardness, the structure at times being almost ivory-like in character.

The treatment of these rhachitic deformities should, therefore, be adapted to the pathological condition which happens to be present at the time when the case comes under observation. As these bone changes usually take place slowly, and, except in acute cases, are not accompanied by much pain or disability, the fact that rickets is present may escape observation until a marked degree of deformity attracts the parents' attention. But careful inspection of children who are brought for examination will often detect the presence of rickets, and the institution of proper diet and mode of life will prevent incipient deformities from becoming marked.

Cases like this should not be left to themselves with the information that they will "grow out of it," but should be helped in the growing-out process by treatment directed to improving their nutrition and general vitality. Cod-liver oil is certainly of very great benefit, and should be tried except possibly in extremely hot weather. It is almost always well digested, especially when given in the form of an emulsion. There has been a great deal of discussion both for and against the use of phosphorus. Kassowitz, from his experiments in lower animals, concluded that in small doses long continued it was capable of decreasing the size of the bloodvessels in the bones, and, as these are abnormally large in rickets, he, in consequence, used it in the treatment of this disease, as he claimed, with great advantage. Other observers have followed in his footsteps, and claim also very beneficial results, while still others have not found as great benefit in their observations. I personally think that it has yielded decidedly good results in my hands, though in almost all instances the child's mode of life has been such that I have found it necessary to correct errors in diet at the same time,

and, therefore, the improvement which I have noticed may not have been due to the phosphorus, although I believe that it is responsible for part of it at least. The form in which I have administered it has been the elixir of phosphorus of the *National Formulary*, devised by Dr. Charles Rice, head of the drug department of Bellevue Hospital, which is as follows: Spirit of phosphorus, 3½ fluidounces; oil of star anise, 16 minims; glycerin, 9 fluidounces; aromatic elixir, enough to make 16 fluidounces. Each fluid drachm contains one-fiftieth grain of phosphorus.

I find that children a year old can take one one-hundredth of a grain of phosphorus three times a day with no bad results, and to children somewhat older I have given one-fiftieth of a grain three times a day with, I believe, great benefit. These doses are much larger than are usually employed, but I have seen no bad effects from them.

Small children with rickets ought to be kept in the recumbent position and receive daily massage, as the soft tissues of their bodies are as much below the normal tonicity as are their bones. In many of these cases slight antero-posterior or lateral curvatures of the spine can be detected, and in such cases I know of nothing so useful as the wire cuirass. It is far better than confinement in bed, as it permits the child to be carried out-doors for fresh air and sunshine, two great aids in cases of malnutrition, whose effect seems often to be overlooked, while too much importance is attached to drugs.

Curves in bones are often found even before children have walked, and manipulation by the hand is an excellent method of reducing these in slight cases.

The hand manipulation, in the great majority of cases, however, can be practised but a short part of the twenty-four hours, and must generally be supplemented by instrumental aid to retain the improved position that has been secured by the hand.

It is unusual for children with rickets to come under the observation of the orthopedist until they have begun to walk, when they are not infrequently brought to be cured of pigeon-toe, and, upon examination, it is discovered that the pigeon-toe is produced by the child's instinct, which teaches it to turn its toes in, in order to avoid undue strain upon the arch of its foot, which the latter is incapable of sustaining on account of the debilitated condition of its bones, ligaments, and muscles, so that if you adjust an appa-

ratus which compels the child to turn his toes out you will be doing it vastly more harm than good, causing a flat-foot to result, and quite likely increasing the tendency to knock-knee, which the child very probably presents. You will further find, upon questioning the parents, that the child has always perspired very freely around the head, possibly to such an extent as to leave a wet place upon the pillow, and that it continues to do so, while careful examination of its body will reveal the presence of abnormally large epiphyses, with a history that the child has been slow in walking.

If the case has advanced further and a decided knock-knee or bow-leg is present, and I find that the bone is at all springy, I resort to the use of a plaster-of-Paris bandage extending from the toes as high as possible on the thigh, and bend the leg as nearly straight as possible while the plaster sets. If it has not been possible to wholly correct the deformity in this manner, after the expiration of a day or two I cut through the plaster shell at the point of greatest deformity, and, bending the leg toward a straight line, open a gap at the point where I have divided the plaster. Into this gap a small plug of wood is inserted, and a few turns of the plaster bandage applied to unite the upper and lower parts of the splint. After a week or ten days this process may be repeated, until the legs have been brought to a normal position.

In following out this treatment, it is necessary to protect bony prominences from undue pressure and not to correct the deformity to such an extent as to cause pain to the child after the bandage has been applied; otherwise, a pressure-sore will be the probable result.

This method, which, I believe, was first introduced by Wolff, in Berlin, has been, in my hands, infinitely more satisfactory than the application of braces and straps. In cases of children whose bones are sufficiently hard to make it wise to allow them to walk it is not practical, as a usual thing, to apply a brace and strap to a bow-leg or knock-knee, in such a manner as to exert force upon the bone sufficient to be of much benefit, and I have found this plaster dressing, which seems at first sight extremely clumsy and inconvenient, much cheaper and more effective, possessing the additional advantage for country practitioners that the services of a skilled mechanic are not required.

I recently had a case of marked knock-knee in a boy, sixteen years of age, who said that his deformity had come on in six

months' time. He had carried heavy loads upon his shoulder; he was fat and soft, and had very defective circulation. His deformity was extremely marked. Knock-knee coming on at this age is extremely rare in this country, although more frequent abroad, where bakers are said to be quite often affected with it, in consequence of the strain to which their knees are subjected in kneading dough, which, in large bakeries, is done by treading on it with bare feet. As his deformity had progressed so rapidly, I concluded that his bones were sufficiently soft to make it possible to relieve his deformity without an osteotomy, and I accordingly treated him in the manner just indicated, keeping him in bed for the first six weeks or so of treatment, until the legs had become nearly straight, after which he was allowed to walk about in his plaster splints.

Another case of rhachitic deformity of the lower extremities came under my observation two years ago, the neck of each femur, in this instance, being involved. The deformity had gradually progressed until the thighs crossed each other at the middle third, making it impossible for the patient to walk, the position resembling very much that of very advanced disease of both hip-joints. The patient also had a moderate lateral curvature of the spine. A diagnosis of coxa-vara dependent upon rickets was made, and the effort was made to remove the deformity by placing the patient in bed and applying traction to the thighs in a longitudinal direction, and also at right angles to the long axis of the thigh, employing as much weight as could be comfortably borne by the patient. By this means her legs were gradually separated, and I received word from her physician some six months afterward that her legs were parallel.

In both of these instances there was manifest a very active rhachitic process in adolescence, which has been mentioned but briefly by a few authors, although I believe its presence is much more frequent than is usually suspected, and is answerable, in a number of cases of lateral curvature, for the very marked increase in deformity which sometimes takes place within a couple of months.

In the case of coxa-vara I was informed by the family physician that the lateral curvature of the spine had increased decidedly, although the patient had been lying in bed during the entire time of treatment.

In some cases of lateral curvature the underlying cause of the

deformity is evidently rickets. In such cases, in addition to exercises, gymnastic training, and diet, the spine should be supported by a plaster-of-Paris jacket, which should be worn until the soft stage of the disease has passed, irrespective of the time this may require. If I had depended simply upon dietetic and hygienic treatment, I feel certain that the boy's back would not have been straight, as his muscular power remained very much below normal for a long while, and he was unable to hold his trunk in a proper position, in consequence of which his softened bones would undoubtedly have accommodated themselves to the crooked position in which they were habitually held. His little sister, who had a rhachitic lateral spinal curvature of less severity, recovered under hygiene, diet, and gymnastics alone.

In cases of knock-knee and bow-legs, where the deformity has been corrected either by manipulation or osteotomy, it is often advisable for the child to wear a slight supporting brace, for the purpose of preventing return of the deformity, and to this end I think that instruments with joints are as useful as I have found them useless in the correction of deformity.

If the patient has passed to the later stage of the disease, and eburnation of the bones has taken place, it is useless to waste time in endeavors to rectify the deformity by manual or instrumental means, and the bone must be broken either by an osteoclast or a chisel. Which instrument should be used depends partly upon the preference of the surgeon, upon his skill in using either the one or the other, and partly on the location of the curve. I, personally, can divide a bone closer to the joint with a chisel than I can with an osteoclast, and should prefer osteotomy in cases where I wish to make a section very close to a joint. But in cases where the bone is to be divided at a distance from the joint greater than an inch, I find that the osteoclast of Dr. Grattan, of Cork, is a useful appliance, and in cases where I wish to break the tibia and fibula in two places, in order to correct the deformity, I prefer to use it. As originally introduced by Dr. Grattan, it had the disadvantage of requiring a very skilled assistant to steady the pressure-bar of the instrument, in order to avoid cutting soft tissues. But this is avoided in his later apparatus by making the pressure-bar automatically controlled by means of a handle which passes through the base of the apparatus. The straight edge of the pressure-bar in both of Grattan's instruments renders it liable to

out the skin, and Dr. A. M. Phelps has modified the apparatus, curving this bar and making it less sharp, which has almost entirely removed the danger of lacerating the skin.

In the after-treatment of these cases, whether you employ osteotomy or the osteoclast, it is necessary that the splint employed should pass sufficiently far from the seat of fracture to retain absolute control of the fragments, as is true of all fractures, and in consequence it is always wise to run the splint well up upon the thorax in cases of knock-knee, and high up on the thigh in cases of bow-legs, in order to hold the bones in such position as to correct the deformity. This is especially true in those cases in which there is a rotation of the femur on its long axis, as well as a hypertrophy of the inner condyle, so that when the neck of the femur is in its normal relation to the pelvis the foot points outward at right angles to the body, instead of straight ahead. In these cases it is not only necessary to correct the angular deviation at the knee-joint, but to rotate the lower fragment upon the upper, sometimes as much as 75° or 80° , that the foot may be brought in proper relation to the body. In cases of bow-leg in very small children it is often a good plan to fasten the plaster-of-Paris shoes to a cross-bar, which, being suspended while the child lies on its back, keeps the legs at right angles to the body, and so lessens the chances of wetting the plaster.

I would like to impress also upon surgeons the possibility of non-union in some of these extremely rhachitic cases, the bone seeming incapable of reunion, probably on account of the great eburnation which is present, which has impaired nutrition to an extent sufficient to prevent the formation of new bone cells. This emphasizes the importance of treating the case in the beginning, while the bones are sufficiently soft to be bent, rather than waiting until fracture of the bones becomes necessary. In many of these cases it is also necessary to support the limbs by apparatus for many months after operation, while the child is being put upon dietetic and hygienic treatment for the purpose of relieving the rhachitic dyscrasia, as I have seen cases which have been cured of knock-knee return in eighteen months' time to the hospital for the relief of extremely bad bow-legs. And the failure to thoroughly carry out after-treatment is responsible for want of success, in this as well as in many other operative measures instituted in diseases of a chronic nature.

DISCUSSION.

DR. J. B. RANSOM, of Dannemora: I suggested in a paper some years ago a sort of basket-contrivance, like a cuirass, in which the rhachitic child could be placed while its bones were soft. By keeping it in this constantly, further deformity can be prevented. In looking up this subject I went into the history of the Indians and the nomadic tribes whose custom it is to carry the infant as a papoose. I found that these children seldom showed rhachitic deformity, because they were laced up to a basket or board until of such age that the bones had sufficiently consolidated. I would, therefore, recommend the basket treatment as very useful in that stage.

DR. A. M. PHELPS, of New York: I agree with Dr. Sayre's remarks in every respect. I am also glad to hear the statement that when these limbs are to be corrected they should be bent straight at once.

There are some orthopedic surgeons who prefer to "monkey" with them for years. There has been a death from osteoclasis, and also one from osteotomy, yet we seem to be justified in stating that we can cure these cases without danger to life. Grattan's osteoclast is the best I know of. I modified it so as to make the plunger, which strikes the bone, curved. With this modification you will have no difficulty in breaking the bones without producing a compound fracture, an accident which is very liable to occur with the unmodified instrument. These rhachitic children should be taken off their feet until the bones get hard. It is well to put them in a sort of cuirass, and by proper bandaging, etc., deformity can be prevented; but having once occurred, it is better to break up the bones and put them up in plaster-of-Paris at once.

DR. SAYRE: It has been my practice to put these small children who are too small to walk, and whose bones are too weak to bear their weight, in a wire cuirass, or on a board, or on a pillow. I think the basket treatment is in the right direction, especially in the cases which used to be called "acute rickets," and which are now called "scurvy."

XL. CONGENITAL DISLOCATION OF THE SHOULDER BACKWARD,
WITH A REPORT OF SEVEN CASES AND AN OPERATION
FOR ITS RELIEF.¹

BY A. M. PHELPS, M.D.,
NEW YORK.

IN April, 1895, I saw my first case of congenital dislocation of the shoulder. There were then only six cases on record. I was astonished, very soon afterward, to find another exactly similar case. This led me to make some investigations in my clinic, and during the past two years and a half we have found seven cases. This makes it probable that they have been looked upon in the past as cases of paralysis occurring at childbirth. I operated upon my cases, and found that they were not cases of paralysis primarily, but really of fracture of the glenoid cavity, produced unquestionably by violence at birth.

In a case of congenital dislocation of the shoulder the elbow stands out from the body, the scapula moves with the arm, the elbow turns forward, and the palm of the hand turns backward. Dr. C. L. Scudder in 1890 described a similar case, but he believed, and stated, that the atrophy was due to congenital conditions, the same as produced the dislocation of the shoulder. Kirschner, in 1895, performed the first operation for congenital dislocation of the shoulder, but gave no description of the operation. His patient died. This was the only operation up to my reported case in April, 1895. In 1839 Dr. R. W. Smith performed an autopsy upon a case in which there was double congenital dislocation of the shoulder, and he found essentially the condition I have described.

In operating, I made an incision along the posterior border of the deltoid muscle. In three of the cases the flap was turned downward, making an oval incision; but, as this prevents drainage, I now make a curved incision below, and raise the deltoid muscle. This gives me access to the head of the bone. The capsule is incised, the fingers inserted, and the head of the bone turned out. The new articulation which has formed underneath

¹ Stenographer's notes of remarks made by the author, exhibiting x-ray pictures of the subject and a pathological specimen.

the spine of the scapula is cut away, the head of the bone is rounded off, and the dislocation is reduced. Part of the capsule is cut away, and the remainder is stitched up behind the head of the bone. Drainage is inserted and the wound closed. (Photographs shown.)

If the condition is recognized early enough and the deformity can be reduced, the prognosis is good. Where paralysis is associated the prognosis is not so good, because we cannot tell whether or not the paralysis can be recovered from. When it is recovered from, the motion is somewhat limited.

I believe the etiology of the condition is the same as that of congenital dislocation of the hip. I have here a pathological specimen showing an early dislocation of the hip with a new acetabulum formed on the dorsum of the ilium. In these x-ray pictures the acetabulum is almost perfect.

DISCUSSION.

DR. L. A. WEIGEL, of Rochester: The subject just presented to us by Dr. Phelps is one of interest to the general practitioner, and particularly to the accoucheur. I believe that these cases are overlooked, as has been stated, and hence the importance of calling attention to the subject. It so happened that within the last two weeks I have seen three cases of so-called "birth paralysis," in two of which I am not yet satisfied of the existence of congenital dislocation of the shoulder, but I am positive of its existence in the third case. I have here radiographs of that case, and they seem to illustrate the condition very well. The palm of the hand points backward, and there is limitation of motion at the shoulder-joint. The picture apparently shows an entire absence of the head of the humerus, but on close inspection the epiphysis, at least, is visible. One radiograph was taken with the patient lying on his back, and the other with him lying on his face. In the latter we find a pretty clear indication of fracture of the posterior border of the glenoid cavity and a tearing away of a portion of it. The operative results presented would seem to justify a resort to this method of treatment. I am not quite prepared to indorse the statement that nearly every case of paralysis is due to a violence such as he has described. It is my belief that some of the cases of so-called "birth paralysis" are due to injury to the central nervous system at the time of birth. I get in every case a history of long and difficult labor, forceps delivery of the head, and a difficult

delivery of the shoulders. In two of the recent cases alluded to there was an asymmetry of the face—a sort of hemiatrophy of the face—and this would seem to point to a central disturbance. In the case of the child, two and one-half years old, the hand does not point backward; there is considerable motion at the shoulder-joint, and the arm can be raised up to a certain point. In the last case coming under observation, an infant of two months had complete paralysis of the whole arm and very marked atrophy from the shoulder down. This child also showed a slight hemiatrophy of the face. I think the shortening of the arm may occur, in certain cases, simply from the trophic disturbance. It is a question in my mind whether the paralysis is always due to the same violence that produces the dislocation; in other words, I believe the paralysis is produced by nerve injury, and that the other trouble is merely a complication. We should not, therefore, subject every case to operative measures without a very clear conception of the exact condition of the shoulder-joint. This can be determined pretty well by an x-ray examination.

DR. PHELPS: Whether the paralysis exists or not in a given case, unless it is total and the muscles did not respond to electrical stimulation, I should certainly reduce the dislocation, because that is the only hope of restoring the tone to the muscles. We are in the dark as to the etiology, and we have met with only a few cases. I would not say that *all* of them are due to violence, but it certainly existed in my own cases. I wish myself placed on record correctly on this point, for it is possible that in the future I may find that such dislocations can occur without violence, and I do not wish to take anything back.

XLI. ON THE TREATMENT OF DEFICIENT EXCRETION FROM KIDNEYS NOT ORGANICALLY DISEASED, AND SOME OF THE DISEASES PECULIAR TO WOMEN, AND DISEASES OF THE SKIN.

BY L. DUNCAN BULKLEY, M.D.,
NEW YORK.

THE general considerations relating to this topic were presented by the present writer before this Society last year,¹ and no attempt now will be made to show either the importance of the subject or

¹ Transactions of the Medical Society of the State of New York, 1897, p. 261; Journal of the American Medical Association, January 8, 1898.

its practical relations. The object of the present brief communication is to again call attention to deficient excretion from kidneys not organically diseased as a cause of some of the chronic disorders of the system, and to make a few practical suggestions as to the treatment of the condition.

As remarked in the former paper, while the main consideration is in regard to the kidney excretion, it is not by any means necessarily implied that the real trouble has always to do with the action of the kidneys themselves; indeed, it might almost be said that the kidneys themselves often play the least important part in connection with the derangements referred to. The failure to appreciate this fact often leads to failure in the accomplishment of the end desired.

However the kidneys may be regarded as independent organs, subject to idiopathic diseases of structure and secretory power, it is to be remembered that at present we are considering deficient excretion from kidneys *not organically diseased*; we have here to do simply with the urine as indicating the removal of effete matter from the body.

Time and space do not permit any discussion of the chemistry of the blood and its relations to the physiology of the urinary secretion, which, moreover, is as yet but imperfectly understood as to how or where the various chemical constituents of the urine are formed. But, looked at in its broadest sense, the kidneys must represent filters which remove from the abundant blood-current brought to them the ultimate products of metabolism which are no longer useful or needed, and whose retention is injurious to the system. Plainly, the kidneys cannot do their work properly if the blood-supply upon which they act is not in a right and proper condition. If the results of assimilation and disassimilation have not been antecedently carried on properly in such a manner that the waste products are available for alteration and separation by the kidneys, these organs cannot make up for such a failure and do the work which has properly belonged to other portions of the economy.

We see, thus, that the subject is a far more important one than it appears at first sight. When deficient excretion has been discovered, the treatment may by no means relate simply to the administration of this or that diuretic to whip up the kidney action, but it may include the most profound consideration and treatment

of the health and nutrition of the patient from every aspect. The subject is too broad a one to elaborate at the present time, and we must leave the many possible features which might with advantage be considered, and be content with a few practical suggestions which arise from experience, dating back some years.

In by far the larger number of cases exhibiting deficient urinary secretion there will be also marked indications of faulty intestinal action and excretion, which must certainly be remedied in order to obtain the best results. These may, of course, exhibit many phases, which need not be fully considered here. It may be remarked, however, that it is often not at all sufficient simply to prescribe a purgative to relieve the constipation present, but there must be instituted a regular and systematic treatment, suited to secure proper bowel action. While temporary benefit of the urinary secretion may be obtained by relieving a loaded colon or rectum, the condition will relapse without proper measures calculated to secure more proper intestinal action. The liver is constantly found to be at fault in connection with urinary insufficiency. Coming yet higher up in the alimentary process, the faulty kidney action may even depend upon errors in primary digestion, and the care of the stomach as to diet, mode of life, etc., may often require much thought before it can be expected that the secretion from the kidneys will be that of health.

Finally, as healthy urine represents the results of normal systemic metabolism, and this takes place in part through muscular action, it is evident that hygiene, including exercise, bathing, sleep, etc., may be an important element to consider in connection with securing a discharge of healthy urine.

Thus much is premised because, in presenting suggestions as to the treatment of the condition under consideration, it must be understood that they are only single elements, looking in one special direction, which may be quite ineffective unless the matters already referred to are well and rightly attended to.

In the paper of last year, already referred to, more especial attention was given to the solid constituents of the urine, and a ready method was presented for determining the amount of daily excretion of the waste products. It is well to remember, however, that, although the total amount of solids excreted each day with a scanty urine and high specific gravity may be sufficient, the processes of metabolism and life are not carried on as well, nor the

patient in as good a physical condition, as when the amount of water in the urine is also normal; perfect health is maintained only when there is a normal amount of healthy urine of a normal specific gravity. Fortunately, in our efforts to secure the increase of the one, if rightly done, we generally increase the other.

Passing by the treatment of the many affiliated conditions of deranged action in other organs which have been alluded to, and which must never be neglected, we will at present speak only of that relating to the kidneys, which should be carried on at the same time.

Diuretics are proverbially uncertain remedies. But if what has preceded be remembered, it is easily understood why this should be so: the kidneys may for a time be whipped into action, but this or that remedy or measure seems soon to lose its efficacy—simply for the reason that the kidneys cannot create the waste products which should be supplied to them by properly elaborated blood, when this fluid is not in its normal condition. Many special kidney stimulants, such as diuretin, uricedin, pipazerin, phosphate of soda, etc., have been brought forward; but, as a rule, I have not relied much on them, nor, indeed, have I placed great reliance on any purely diuretic remedies, because measures which have seemed to be more correct physiologically have, as a rule, accomplished what was desired in a more satisfactory manner.

Water is undoubtedly nature's great diuretic, and upon its proper use depend the life and health of the individual. The vast army of invalids and others who frequent the mineral springs of this country and Europe, with more or less benefit to chronic disorders, should teach us that this great remedy of nature, water, is ever potent to restore deranged vital action. And, furthermore, the great variety of the mineral waters which are employed, often with benefit, by the same patient, together with the great variety of diseases often found to be benefited at the same spring, all teach us that it is not the mineral ingredients which are the effective agents, so much as it is the water itself, common to all; this, of course, is aided by the change of scene, air, and diet, together with the hope infused thereby.

The first lesson which I learn from mineral springs is that the water does greatest good when taken warm or hot; most of the European and many of the American springs of note are hot, and even Vichy, which is so often taken iced, issues from the ground

at one of the springs at a temperature at which it can hardly be drunk. In giving water at home, therefore, experience from nature tells us that it will be of most service warm or hot.

The next lesson I learn from the experience of those who prescribe the natural mineral waters at the springs is, that this extra quantity of water should be taken on the empty stomach, some time before meals, while very little liquid is allowed during the meals, for physiological reasons familiar to all.

But it will often be found very difficult to secure just the right and proper administration of water in this country and at home, as compared to the readiness with which this is accomplished when patients follow the directions given to them at public watering-places; and some of the knack of handling these cases successfully consists in securing a rigid adherence to proper directions under all circumstances.

The ordinary drinking-water of most places seems flat, insipid, and unprofitable to patients, especially when heated, and practically it is very difficult to get them to take plain water, whether cold or hot, with perfect regularity; and yet herein lies the success of treatment. At the mineral springs, abroad at least, the careful directions of the resident physician are punctiliously carried out; and my experience, as well as that of others, has shown that when we can secure the same perfect obedience to orders, with whatever form of water may be ordered, we obtain satisfactory results.

As already intimated, I do not think it matters essentially exactly what water is employed, and in handling a case it is often desirable to change the special water from time to time. This may be done both in order to get the particular effect of this or that mineral ingredient acquired at different times, and often, again, to get that variety in treatment which in some cases is essential to success. The aim of it all is to secure the passage of the requisite amount of water, H_2O , through the system. There are very many so-called mineral waters on the market which differ materially in their composition; many claim to be little more than pure mountain spring water, often artificially charged with carbonic acid gas, while many others have very active mineral ingredients. It is impossible at the present writing to state which mineral waters have proved the most serviceable, for excellent results have been obtained from many of them, both those which were comparatively void of active medical ingredients and those heavily charged with mineral

salts. As before stated, it is believed that the water itself is the most potent ingredient in them all, and one of the main advantages in using these commercial waters over common drinking-water is that which arises from having one which is palatable. To this must be added, however, the mental effect, for the secretion of the kidney, as is well known, is greatly influenced by the state of the mind; this is illustrated in the urgent and often free passage of urine under mental excitement or worry.

Many drugs are of more or less value in connection with deficient excretion from the kidney, but their action may be uncertain and, as might be expected, their effects are more or less transient; the whip soon ceases to be effective if too continuously applied, and often, as before shown, it is impossible to cause the kidneys to secrete normal urine from blood not properly elaborated.

Foremost among the mineral salts stands the acetate of potassa; under proper conditions, it is a most valuable diuretic, and, in my experience, is superior to the citrate of potassa. In most instances it is best given in ten to twenty grain doses after eating, in a bitter infusion with *nux vomica*. When there is stomach atony, with weak secretion of gastric juice, it is best administered half an hour before eating.

There are, of course, many remedies, mineral and vegetable, which at different times and under varying circumstances will serve to increase either or both the solid and the liquid portion of the urine, and it would lead us far beyond the proposed limits of this paper to attempt to mention them at all fully. Nitric acid has served me a very good purpose many a time, when given in three to five drop doses of the strong acid, well diluted in water, after eating. *Buchu*, *digitalis*, *broom*, and *triticum repens* have been the vegetable diuretics on which I have most relied and which I still use.

But the object of this paper was not so much to specify particular remedies, which, as will be understood from what has preceded, must be very different in different cases. The desire was, rather, to call serious attention to the necessity of studying each case, with a view to determining and rectifying the condition of system which leads up to or induces the deficient excretion from kidneys not organically diseased. With careful study and observation it will constantly be found that the fault is not in the kidneys themselves, but in other portions of the system, and with a careful rectification

of the stomach, liver, and intestinal action the kidneys will, with a very little aid, perform quite their natural functions. I wish, also, to call particular attention to the very important part which water, when rightly given, plays in restoring faulty kidney secretion. Warm milk, when given pure and alone, one hour before meals, also acts most favorably in this direction.

XLII. THE RELATIONS OF THE MEDICAL PROFESSION TO THE PRACTICE OF MIDWIFERY.

BY C. F. TIMMERMAN, M.D.,
AMSTERDAM.

It has been my privilege very recently to be somewhat active in bringing to the notice of our community, if not to justice, one of the most unnecessary and useless fixtures of our profession, the midwife. It is one of the things which the State of New York, for some unknown reason, has looked upon as a necessity; but why, I cannot determine. It appears to me that the medical profession are a unit in thought that they are unnecessary and the community would be better off without them, and yet year after year we are unable to have a law enacted whereby they can be prohibited or even restricted in their work. The reason why, I will endeavor to give as I look at it; and if I can, by my feeble effort, awaken an interest or cause this Society to see its shortcomings, I am well repaid for my effort. At a meeting of the Montgomery County Medical Society in December last I read a paper on "The Duty of the Physician to Himself," and the Society voted unanimously that a committee be appointed to draft a bill on the practice of midwifery by others than regular physicians for our county; the same has been presented to the Legislature, and is in the hands of the committee; and also to urge on the State Medical Society to draft a bill governing the practice of midwifery for the entire State.

I will be excused, I trust, if I refer to my connection with a midwife in our city, a graduate of the O'Reilly School in New York City, which the New York members, the most of them, know so well. Medical journals lately have had so much said, and

medical societies also, concerning this subject that I think I may be pardoned if I refer to it.

On Monday, September 27th, about 5 A.M., I was called to the home of a German living in our city to attend his wife, who was, as he said, "very sick, and going to have a baby." I responded to the call, and upon my arrival found the woman had been flooding, and her appearance showed her to be in a very critical condition. I found that she had been flowing at different times from the Tuesday before, six days. They said no physician had been called. I quickly made an examination and found what I anticipated, a placenta prævia. A portion of the placenta as large as my hand was lying in the vagina, and the vagina filled with a mass of clotted blood. I gave strychnine hypodermically and stimulants by the mouth, as the bag of waters was broken, head low, and cervix fully dilated. I applied the forceps and delivered easily; no flowing followed, and in twenty minutes to half an hour from the time I entered the house she was delivered. She did not rally, but died within fifteen minutes. I gave a certificate of death. The day after her burial I learned for the first time that a midwife had been attending her since the Wednesday before, and they said she told them "she had stopped the hemorrhage on one or two occasions; and all would be right, as she had eight or twelve days to go yet." I placed the case in the hands of the coroner for an investigation, visited New York City, saw quite a number of the members of this Society to learn what could be done with this woman and to investigate the O'Reilly institution. I returned to Amsterdam with much sympathy and well wishes from all the physicians I met, but with little satisfaction. After a thorough investigation by the coroner's jury, I found that in our little city alone quite a number of deaths could be traced to her door. The following verdict was rendered: "In our opinion, from the evidence we believe that Mrs. Porath came to her death through a hemorrhage, the result of placenta prævia, and through the ignorance or neglect of the midwife who was in attendance in the case by allowing her to remain in this dangerous condition without calling to her aid a competent physician, and we recommend that the Medical Society of the County of Montgomery and the Medical Society of the State of New York petition the Legislature at its next session to pass a law which will regulate the practice of midwifery."

Now, gentlemen of the State Society, what is our duty? The Montgomery County Society has responded. What is this Society going to do? Murders are committed almost daily, yet we do not raise our voice against them. If these same women came to our homes, or to the homes of the most degraded, and shot down the wife and mother, the papers would put in their largest type that "a most foul crime had been committed." And we would raise our hands in horror. But, as physicians, we members of the State Society, because we cannot have a law suited to each indi-

vidual opinion, are indifferent, if we do not oppose it. The importance of this, it seems to me, to be of consequence to us all. We are all united as to a more thorough college course, and the State law now requires four years' study. Investigation as to the cause of disease, preventive remedies, more thorough modes of disinfection, the greatest care is required for our hands and persons at confinement and operations; and yet we allow—I say *we* allow, for it is in our power to demand, if we are a unit, the restricting and education of these women—yet we allow them to continue in their nasty habits. The members of the Legislature are ready, I know, to act, when they have explained to them the injustice and danger to themselves. If the legal profession wish a law they get and get it quickly; and if we wish one, it takes us from three to six years to get it, after continuously coaxing and petitioning; and when we get it it is probably a miscarriage. Let us unite on a bill and demand its passage; throw to the winds individual preferences; get an entering wedge, and, later, change as we can. The Society of Medical Jurisprudence, the New York County Medical Society, and other societies have appointed committees, and now it remains for us to instruct our committee and see that the bill is passed. Last year the Committee on Legislation prepared a bill which was presented to the Legislature with the indorsement of the Board of Regents, and yet it died.

I do not intend to take up the time of the Society to rehearse what each of you so well know, yet a word only on the subject. Nature is a physiological process, and a child would be born whether a physician or midwife was present, or even the woman alone, in the majority of cases, and any woman who knows enough to tie a cord and wash the baby would be very much better than these meddlesome, officious, and dirty midwives who assume to know so much, while their ignorance is so great, jeopardizing lives, and we are compelled to sign their certificate of death. It may be that in some countries and at some former time there was a reason for them. But to-day, where the city provides medical attendance free and maternity hospitals are open to all who will come, poverty need be no excuse for their employment. It is by the grace of the medical profession alone that they are allowed to continue, and until this, the representative Society of the State, and other societies stand firm in the matter, back up our Committee on Legislation, and demand recognition from our members at Albany,

so long will we be the victims of abuse and imposition. Laws are passed, fines are paid for illegal practice in other departments, yet the State takes no cognizance of midwives—only in special acts. I have recently had considerable correspondence with members of this Society in cities where these special laws are in force, and they say that it is much better than no law; but there is still room for improvement, and each of the gentlemen expresses the opinion that a uniform State law would be much better. One physician says, “No amount of instruction and no examination, however rigid, can educate out of a midwife habitually used to the old, dirty ways of practice, nor can it teach such women and compel them to follow the principles of cleanliness that we know to be so important in this department of medicine.” It remains for us to ask our legislators for a law compelling a certain amount of education for these women, or through our indifference continue as heretofore. And I trust I am not deceived in my good opinion of this Society, and that they will not longer remain without a law on this subject. This Society, as a body, can act unanimously in instructing the Committee on Legislation, and each member as an individual has a duty to perform to request his representative in the Legislature either in person or by letter for the enactment of such a law; and the State will be rid of an imposition upon its citizens and a blot upon our profession.

Gentlemen, what are you willing to do?

XLIII. THE VARIATIONS IN THE RELATIONS OF THE VERMIFORM APPENDIX FROM THE STAND-POINT OF EMBRYOLOGY.¹

BY JOSEPH DAVIS CRAIG, M.D.,
ALBANY.

It seems almost essential in introducing any paper upon any subject pertaining to the structure, relations, or pathology of the vermiform appendix, at this late day, to offer an apology for the further consideration of any one of the details in regard to an organ whose functions and surgical manipulations have held so

¹ President's Address, Albany County Medical Society; transmitted by vote of the Society to the State Society for publication.

conspicuously in the keenest interest the professional mind through the last few years. The great body of physicians seem now to regard the discussion as about closed, and feel that everything has been said upon this subject that can be said in the thousands of books and pamphlets and magazine articles which have marked the investigation, development, and perfection of this most interesting branch of surgical art.

Epochs in political history follow each other only after long periods of years; in medicine and surgery, through the last century, issues of the greatest consequence to human life have been determined, and events of momentous importance to the welfare of the community have succeeded each other with a rapidity which is bewildering. And so, as a new epoch in the art of medicine is beginning to unfold even before humanity has reaped the full fruition of the old, the interest of the medical profession is being markedly diverted from the further consideration of the anatomy and pathology of the vermiform appendix, and intensely centred in the progress and result of the endeavors to procure and properly apply protective antitoxins in the various zymotic diseases. The popularity and efficiency of the use of antitoxins in specific diseases is growing with great rapidity, and their results bid fair to rival, if not excel, any of the brilliant rescues from impending death that have so often been the consequence of surgical interference with the diseased appendix. There seems to be no question now but that the healing art is to receive another wonderful exemplification in the antitoxin treatment of disease, as it only just now has witnessed in the triumph of the surgery of the diseased appendix, of the beneficent results to humanity of patient experiment, scientific precision, and ceaseless industry when undertaken in thoroughly-equipped institutions with ample endowment or under government control.

Yet notwithstanding this tendency to turn the professional mind into fresher and more novel fields of investigation; notwithstanding all that has been said and written of the vermiform appendix; notwithstanding all that has been discovered in regard to its anatomy, physiology, and pathology; notwithstanding an almost perfect technique in operative procedures which has lowered the death-rate from an average above that of the so-called zymotic diseases to a fraction of 1 per cent.; notwithstanding all these things, there is still much to be desired, particularly in the knowl-

edge of many of its anatomical peculiarities and physiological characteristics. Speaking for myself, I am not so sure that we really have demonstrated that the appendix is a vestigial remain, and it may, perhaps, be that this interesting little body may, after all, have some physiological use in the human economy in relieving in an emergency too great pressure in the caput coli from accumulated feces. This is audacious and heterodox, I know ; but these things are characteristics of the age. When the urachus ceases to be of further service, the lumen disappears, the elements of its walls become degenerated, and in a great measure absorbed, eventually leaving nothing but a rounded cord of connective tissue, at times so small as to be scarcely demonstrable. The gubernaculum testis, as soon as it has performed its particular service to the economy, loses its muscular structure, and before long entirely disappears. After the descent of the testicle, the serous canal through which it passes becomes, as a rule, obliterated, or remains only as a pathological menace. The muscles of a limb confined in a restraining dressing for even a few weeks show decided atrophy from lack of use, and if confined long enough, will lose their power of contractility entirely. It seems to be the inevitable law that any organ of the body which is of no further assistance, if only to a small degree, in the consummation of vital processes, degenerates and atrophies, finally to be demonstrated, if at all, as connective tissue with all its special functioning cells entirely obliterated.

It therefore seems strange to me that we persist in calling the vermiform appendix a vestigium, a remembrance of remote ancestors of a lower type, a useless member of the organism and a peril to its existence, when this body shows not the slightest tendency to follow the customary course of all organs that have served their day of usefulness in the human economy, and persists, preserving all its elements in full physiological life. Its lumen is unimpaired ; its mucous membrane is in full vigor, and differs not at all in quality and arrangement of tissue from the similar structure of the large intestine ; it has the two muscular coats common to hollow viscera in full development, with an internal circular coat ready, by its vermicular action in normal states, to expel any temporary foreign particle which might have eluded the watchfulness of Gerlach's valve ; it has its covering of peritoneum and its meso-appendix, partaking of the characteristics of similar structures elsewhere in the abdominal cavity, and it has a blood-supply

ample for all its needs. If the appendix is a rudimentary organ, where will you find another remnant of past usefulness which preserves in full energy its old-time functional activity? Because the appendix is, perhaps, an organ of very small physiological importance, and one which the organism can get along without, it does not follow that it is but a rudiment. The little toe is an organ of very small physiological importance, and one which the organism can get along without, and a nuisance when it has a clavus on it, yet no one claims this little digit as a rudiment either for these reasons or because it is not as long or as broad as a monkey's. Some one has advanced as an argument, as showing the tendency of the vermiform to degenerate, that the adenoid tissue in its mucous membrane in early life almost entirely disappears as old age approaches. This does not seem to me to be a valid argument. For we know that what is true of the adenoid tissue of the appendix as years go by, is also true of this type of tissue wherever it appears in other portions of the body. The tonsils shrink after the period of puberty, largely from the loss of adenoid tissue, and, in like manner, these lymphatic structures largely disappear from both the large and small intestines. In speaking only for myself, it is my belief that the appendix is not a rudiment. It is an organ functionally useful to a small degree in the mechanism of digestion, whose exact use has not been demonstrated.

The elements of structure of the appendix—that is, its lumen, mucous and muscular coats—do not, in different cases, differ in any decided respect from type; neither does the peritoneal investment, except as to the extent to which it covers its walls. Its attached portion or base is pretty constantly found behind the head of the colon and just below the ileo-cæcal valve, and yet in a considerable proportion of cases the base of the appendix approximates the most dependent surface of the cæcum, or, in rare cases, may be found in front of it. All this, of course, is a matter of general professional knowledge.

While the elements of which the appendix is composed are fairly constant in their quality and arrangement, it is in its relations with surrounding structures that the widest departures from type are found. The variations in the attachment of the base of the appendix and the decidedly different relations of its body with neighboring parts are best understood when considered from the

stand-point of embryology. And because this particular method of considering the relations of the appendix and its results is not a matter of common professional knowledge, I have been induced to present this subject to-night from a point of view which will, perhaps, be new to some of you.

In the first place, the variations in the relations of the appendix are complicated by very marked and frequent departures of the peritoneal coat from what may be considered a typical or common arrangement. The serous membranes, not only here, but wherever found throughout the body, are a most interesting study, even when considered by themselves, and there is no class of structure with which I am familiar that show so great a tendency to fail in their conformity to type. In fact, I scarcely remember an examination of any serous sac that in all details answered the description usually found in works on anatomy. The simplest of them all in arrangement, and the least frequent to depart from type, are the pleuræ. This is, of course, because the surfaces of the lungs are comparatively smooth, and are not broken by many inequalities or complicated arrangement of organs which are to be covered by serous membrane. Then follow with a little more variety of arrangement, because of a more complicated arrangement of tissues, the vaginal sheaths of the tendons of certain muscles, and the lining membrane of the joints. After these come, in the order of complexity of arrangement, the tunica vaginalis testis, the pericardium, and, last of all, the peritoneum. So as the viscera which these serous membranes cover become more complicated, in equal proportion does the variation in arrangement become more involved. About the vessels at the base of the heart the pericardium may form any degree of investment from a perfect vaginal covering to a slight relation only on a single aspect of their walls. In the same way the peritoneum will show the greatest vagaries. Thus the ascending and descending colons may be so completely surrounded, on the one hand, by a serous covering so abundant that not only will they be completely surrounded, except for a narrow space behind, but also at times a very wide mesocolon attaching them only to the posterior abdominal wall may permit of very extensive movements laterally. Such serous covering, on the other hand, may be so limited in extent that only the anterior and part of the lateral walls of these two colons may be invested. It is only by means of such a long mesocolon on the right side that

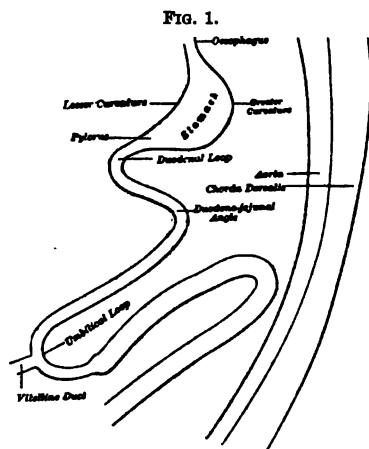
the appendix is ever found in the neighborhood of the left iliac fossa. After the same manner the peritoneum will be related to the appendix. Whatever its position, except when in the cellular tissue behind the cæcum and colon, whether to the right side, or to the left, or below, the serous covering may be so generously applied that a very wide and ample meso-appendix may result or only a very limited investment may be found in front. Appendices with an ample meso-appendix, which, as a rule, will be sickle-shaped, but at times have a very wide edge, posteriorly placed, and firmly united to the abdominal structures behind, can be extended to their full length of traction at their apices, or not, depending upon whether or not the peritoneal investment has kept pace in its growth and adjustment with the developing cæcal adjunct.

I have examined a good many appendices in the dissecting-room, and have observed this rule in regard to the relations of the vermiform with the peritoneum, that in those cases in which the appendix is to the left of the cæcum there is found the greatest tendency to the formation of a complete meso-appendix, while in those quite numerous cases in which normally, as it would seem, there is a tendency to the right side, the peritoneum holds a relation only with its anterior wall. Of course, an appendix lying in the cellular tissue behind the colon is without peritoneal investment.

It is impossible, I think, to clearly and thoroughly understand the very many varieties of position of the appendix unless we have some general idea at least of the manner in which the appendix is formed, its original position, and its line of movement from its place of formation to its final and more common adult relation on the border of the pelvis on the right side. While such information is in the possession of those dealing specially with the pathology of the appendix, it is not a matter of general professional information. Embryology furnishes us the key by means of which we can explain many, if not most, of the curious relations of the vermiform appendix. It ought to be remembered in the beginning that the original foetal peritoneal investment of the appendix is not its secondary or final one. The peritoneum has the power of constantly adapting itself to the shifting and growing organs over which it lies. The appendix and cæcum seem to slide, to use such an expression, under the peritoneum, causing an elevation, as they travel onward, of the serous membrane in front of

the advancing body, and a recession of the same membrane behind it.

The digestive tract is originally developed from a straight tube, which is placed posteriorly and vertically in the abdominal cavity, and is held to it by a primitive fold of peritoneum, forming an original mesogaster, mesentery, mesocolon, etc. From this time onward to the period of full development the digestive organs retain to a greater or less degree an investment of serous membrane. The original straight mesially and vertically placed digestive tube soon changes its relation and bends forward at about its centre, which at this point has remained partly open, to eventually form the vitelline duct, which duct passes out of the abdominal cavity through the umbilicus by a short stem. (Fig. 1.)



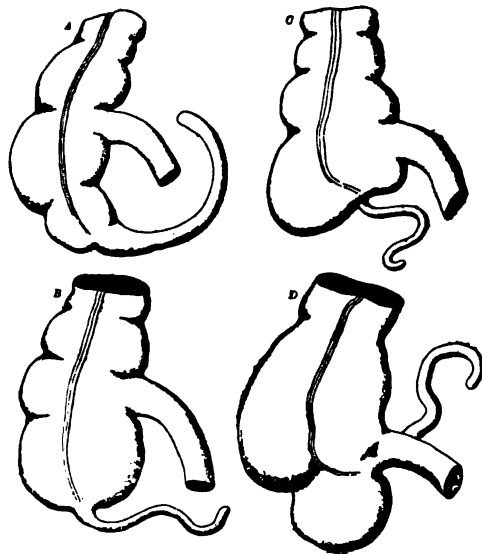
From Gray. (After Dexter.)

The vitelline duct is, as is well known, but a temporary structure, and, as a rule, disappears entirely. Occasionally, however, a part remains, develops with the intestinal canal, and appears later as a dilatation of the wall of the small intestine twelve or eighteen inches from the ileo-cæcal junction. It is commonly known as Meckel's diverticulum. This vitelline duct, or the summit of the anteriorly blending primitive digestive tube, is now located at the umbilicus. Just below it a dilatation appears, which dilatation eventually forms the cæcum and vermiform appendix. All portions of the tube above this point will, as it now rapidly increases in length, form the stomach, duodenum, jejunum, and ileum, while

all portions below will form the colons, sigmoid flexure, and rectum. From this it is seen that the original site of the appendix is just below, and very shortly afterward a little to the left of the umbilicus. This dilated portion of the tube becomes, as the embryo develops, very much enlarged and elongated. As a rule, in herbivorous animals development never proceeds beyond this point; there is no differentiation of an appendix, and the cæcum remains a simple, large, elongated organ. In the human embryo, however, the distal end of this primitive cæcum becomes gradually contracted to form the vermiform appendix. Of course, the length of the primitive cæcum so contracting will determine eventually the length of the appendix. In at least four cases on record this contraction failed to take place, and no appendix developed.

At this time the appendix and caput coli are entirely surrounded with peritoneum. The development of a meso-appendix occurs later. The cæcum, which can very early be differentiated from

FIG. 2.



From Gray. (After Treves.)

the appendix, dilates above the point of attachment of the two bodies, and the character and extent of this dilatation, together with its location on one or the other of the walls, will determine the position of the appendix in relation to it. Should the dilata-

tion occur on the posterior wall, the base of the appendix will arise from perhaps the rarest of all positions in front of the cæcum; should the enlargement take place anteriorly, as it most commonly does, the appendix eventually has an attachment to the posterior wall; should the dilatation be on one or the other of the lateral walls, the appendix will arise from the inferior aspect of the cæcum. If there is but little if any tendency to enlargement, the appendix not only will arise from the inferior aspect of the cæcum, but will also conform to the foetal type. Combinations of these simple dilatations will produce an infinite variety of relations of the appendix and cæcum. It is most usual for the anterior and right lateral wall to dilate, thus causing the commonest origin to be found behind and a little to the left of the cæcum. (Fig. 2.)

FIG. 3.

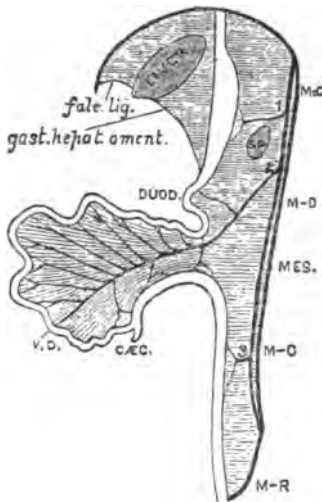
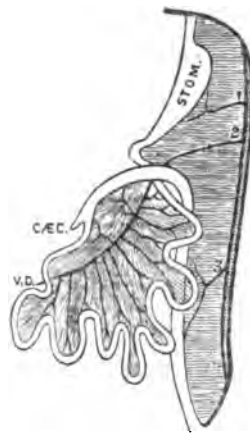


FIG. 4.



From Morris.

As I have already said, all the portion of the intestine lying above the dilated primitive cæcum forms the small intestine, and lies to the right side of the abdominal cavity, while the portion below lies to the left side, and enters into the formation of the large intestine.

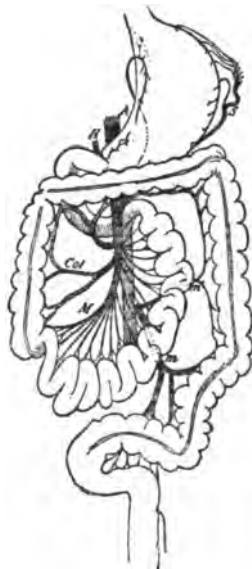
Soon after the formation of the cæcum and appendix a remarkable rotation takes place along the digestive tube around an axis formed by the superior mesenteric artery (Figs. 3 and 4), and when completed the small intestine is found to occupy the centre

of the abdominal cavity, and the larger intestine to form a loop around its upper and lower borders. (Fig. 5.)

To accomplish this the vermiform appendix first travels upward and to the left from its original point of formation, just below and to the left of the umbilicus, toward the diaphragm, upon approximately reaching which it turns to the right side under the spleen, forming the splenic flexure of the colon as it goes. (Figs. 6 and 7.)

The appendix then continues to progress transversely across the epigastrium to the under surface of the neck of the gall-bladder, where it turns downward, thus forming another curve, the hepatic

FIG. 5.



From Gray. (After Jonnesco.)

flexure of the colon. Finally passing down the right side, the ascending colon is formed behind it, and at last reaches its destination in the region of the iliac fossa. As this last descending movement occurs, a trifling variation to one or the other side will cause the cæcum, and with it the appendix, to move outward to the iliac fossa, on the one hand, or beyond the pelvic brim, on the other. Or, should the movement stop short of its usual length or be continued beyond it, the cæcum and appendix will finally rest high up in the false pelvis, on the one hand, or descend into the true pelvis, on the other.

Combinations of the lateral and vertical varieties will determine also an infinite number of positions for the cæcum. Supposing, as sometimes, though rarely, happens, the process of advance is arrested at some point in its course from the location of its formation about the umbilicus to the iliac fossa. Wherever this occurs there will be found the cæcum and appendix. So that an appendix, by reason of an arrest of full development, might be found at times under the liver or high up in the abdomen toward the left side.

FIG. 6.

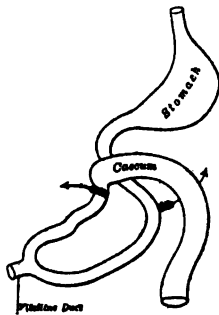
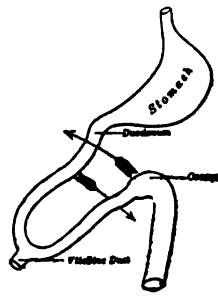


FIG. 7.



From Gray. (After Jonnesco.)

I cannot understand, from the above reasons, how an appendix can be found in the neighborhood of the left iliac fossa, except in those cases where a very long mesocolon on the right side permits of it.

Appendices departing remarkably from the right iliac fossa are of interest, however, more as curiosities than anything else, for they are exceedingly rare. I have been searching very diligently for an appendix approximating the left side, or for one high up toward the under surface of the liver, but without success. Perhaps a hundred or more subjects have been examined. Either of these conditions must be exceedingly unusual, and Fowler's three cases of left-sided appendix (or appendicitis) must, one would suppose, have been cases in which the appendix was pulled over to the left side by pathological adhesions.

Just one point more before concluding. The peritoneum does not always adjust itself completely to the slowly growing organs with which it is related. It is easily understood, I think, after a moment's reflection, how it is that the appendix held by a layer of peritoneum to a greater or less degree will, if the peritoneum

develops to an equal degree with the appendix, permit of its elongation on traction to its fullest extent; while should the serous membrane not so develop, the appendix will be variously curled and folded upon itself. It is for the same reason of a lack of a complete adjustment of the peritoneum that the appendix, as it descends from the region of the liver, shows such a marked tendency to point upward and not downward, as it would do if, being free, gravity alone influenced its position. As the appendix descends its position behind or to the right or left side of the cæcum will be determined in part by the relative dilatation of the walls of the caput coli, and in part by the influence of the peritoneum.

From what has been already suggested in this paper, it will be seen that the relative position of the appendix in the body, and its relation to the peritoneum, is determined almost wholly by embryological considerations.

The cæcum may for convenience be said to be found normally (that is, in the great majority of cases) resting on the psoas magnus muscle at the brim of the pelvis, on the right side and about its centre. The base of the appendix in the same way may be said to be found normally behind and toward the inner side of the caput coli. In a very large percentage of cases, for reasons in great part embryological, the cæcum and appendix will depart from their normal positions. The influences which are at work to produce these infinite varieties of the relative arrangement of the organs under consideration can be fairly classified or grouped as follows :

1. The variation will be influenced by the place at which the cæcum stops in the developing embryo in any region from the point of original formation below and to the left of the umbilicus, along the line of the transverse and ascending colons to the iliac fossa.

2. The positions of the base of the appendix, below, behind, to the right or left, or even in front of the cæcum, will be influenced by the relative dilatation of one or more of the walls of the primitive caput coli.

3. The relation of the body of the appendix will be determined as it descends in part by a vital tendency to either side of or behind the cæcum, and in part by the greater or less degree of firmness with which the peritoneum covering the appendix to a greater or less extent resists the vital forces which determine its descent under common physiological conditions.

4. The mobility of the parts, as influenced by the reflections of the peritoneum about the ascending colon, forming in some cases a very wide mesocolon and in others none at all, will also determine a large number of variations.

Starting with these four conditions as determining the position of the appendix, an infinite variety of combinations may be formed, so that this interesting (even if a little hackneyed) body may be found in almost any region of the abdominal cavity, and may appear at times in a congenital umbilical rupture or in a right or left inguinal or femoral hernia.

I have purposely avoided statistical tables in this paper because its purpose was not so much to present new facts as to unfold, in perhaps a new light to many members of the Society, especially those not engaged in special work, the manifold relations of the appendix as explained by embryology.

So many things have been abundantly demonstrated concerning the appendix, and so many tables of recorded facts are in existence, that I have thought it perfectly proper, without presenting them again at this late day, to rearrange some of them, in the hope that this annual address of the President of the County Society might excite the interest of, if it did not instruct, some at least among its membership.

XLIV. FUNCTIONAL GASTRIC DISEASES ; THEIR DIAGNOSIS AND TREATMENT.¹

By A. L. BENEDICT, M.D.,
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FUNCTIONAL GASTRIC DISEASES. At first thought, it is almost incomprehensible that distressing symptoms and bodily depression may occur without a lesion that the most delicate manipulation and the highest magnifying powers can discover. Whether we admit that a functional disease is possible, or whether we consider that all disease is accompanied by some organic change, even though too slight to be recognized, is not of practical importance. It is necessary, however, to recognize clearly the difference between those diseases that are marked by a discoverable lesion and those

¹ Being the Merritt H. Cash Prize Essay, 1896.

which are not. The truest conception of the latter includes all functional diseases, in whatever organ or apparatus their symptoms are manifest, under the head of nervous disturbances. For various practical considerations, the nervous specialist can scarcely include in his province neuroses with such marked local symptoms as those of the stomach. Successful treatment of such disorders, however, depends on the realization that we have to deal, not with a broken engine, but with one which is working under too high or too low pressure and which requires, not repairs, but careful adjustment and management.

The functions of the stomach may be tabulated as follows :

1. Secretion of hydrochloric acid.
2. Secretion of pepsin.
3. Secretion of rennet.
4. Peristalsis and churning movement.
5. Proper action of sphincters.
6. Absorption.
7. Sensation.

Theoretically, we might expect to establish fourteen types of gastric neuroses, with an almost infinite number of combinations, according as each of these functions were above or below par. Practically, we shall find no such complexity. Let us begin with the last of the list and consider each function in detail.

DIMINISHED SENSIBILITY. The sensibility of the normal stomach is so slight that perfect health has long ago been defined as a condition in which one was not conscious of having a stomach—and, we may add, there should be a similar subjective ignorance of all the viscera. The normal sensibility of the digesting stomach may be compared to that feeling of self-satisfaction which is usually associated with a clear conscience. The writer has had under his care, and still has under observation, a man who, without the least disturbance of chemical digestion and assimilation, has not known for years the sensation of hunger nor of appetite. Here is a depression of the sensory function of the stomach, yet it can scarcely be considered as a disease, since the man's general health is excellent. Even granting that the case is to be considered in the light of a derangement of function, it is difficult to decide on a proper course of treatment.

INCREASED SENSIBILITY. An excitation of the sensory function of the stomach may be a neuralgia—when it is to be treated on

the same lines as a neuralgia of almost any other part of the body, with the exception that local measures may be applied by means of internal administration. It may also consist in a hemihysterical hyperæsthesia, by which the patient imagines that he or she can follow the digestive process and feel particles in contact with the stomach-wall. Heartburn, nausea, etc., cannot be considered as perturbations of the sensory function of the stomach, any more than the pain of a burn is a disturbance of tactile sensibility. Although pain is in a sense abnormal, it is inevitable, and the nerves of the body are normally endowed with the power of notifying the conscious centres of damage inflicted. Heartburn is due to an irritation by a too highly acid gastric juice, the acidity being more commonly due to organic acids of fermentation, occasionally to a supersecretion of hydrochloric acid. Nausea, too, is essentially conservative, being a notification that the contents of the stomach are injurious and that evacuation is more or less strongly called for. We must clearly recognize the difference between a true gastric nausea and one from reflex causes, and must distinguish projectile vomiting as a motor and not a sensory disturbance. The pain and nausea dependent on actual organic changes in and about the stomach are also to be excluded from this discussion.

The hysterical hyperæsthesia referred to above is to be treated on general principles, like most hysterical cases. True gastralgia requires tonic, nutritive, and alterative treatment, intended to "give food to a starving nerve." So far as local anodyne measures are concerned, what is said in this connection will apply to almost any painful condition of the stomach, except that here we need to consider less the antiseptic and digestive influences of our drugs and more their power merely to allay pain. One of the best local anodynes is heat, applied by means of a poultice, or, still more directly, by means of hot drinks. Bismuth subcarbonate and sodium bicarbonate, which are quite effective as palliatives of heartburn, are practically useless in the treatment of true gastralgia. Carbolic acid, aqua chloroformi, cocaine, the volatile oils, especially oil of peppermint, atropine, aconite, acetanilid, etc., are here indicated for their local anæsthetic effect. Opiates will be avoided by every conscientious physician.

GASTRIC ABSORPTION. Whereas sensation is a function of the stomach that cannot be diminished, absorption is one that can scarcely be conceived of as increased. Maltose and peptone are

absorbed from the normal stomach almost immediately after their production, mere traces being present in the filtered stomach-contents. Especially is this true after the first two hours of gastric digestion. Granting a brief delay of absorption, its consequences will not be serious, since, under ordinary circumstances, the body has a considerable reserve of nutriment. However, if the function of absorption actually fails, the consequences are most disastrous. Such failure is comparatively common, but it does not usually occur to the physician in charge to classify it as a functional gastric lesion, since there is often disease of other organs. It certainly does fail in anæmia, for ordinary diet contains enough iron for the needs of the system, while the entire amount in the body, about three grams, is usually administered in the course of two or three days' medication. In shock, also, it is well known that absorption is suspended until the stage of reaction.

It has been proposed to test the absorptive capability of the stomach by administering twenty centigrammes of potassium iodid in capsule, detecting the iodine in the saliva with nitric acid and starch paste. The experiment is a very pretty one and easily performed, but the writer is growing more and more skeptical with regard to its practical value. Under ordinary circumstances, whether tried before or after meals and in whatever form of functional stomach trouble it be used, the test will show the elimination of the iodid in the saliva in from ten to fifteen minutes. This means: (1) that the capsule has been dissolved; (2) that the potassium iodid has been dissolved; (3) that the potassium iodid has been absorbed; (4) that the salt has traversed the portal, pulmonary, and general circulation, the last two many times before a detectable quantity has reached the salivary glands; (5) that the salivary glands have excreted the salt; (6) that the saliva has gathered in sufficient quantity and has been expelled from the mouth. (1) and (2) occupy about two minutes, (4) represents about twenty-five seconds for each circuit, (6) occupies about half a minute. Even these factors are variable, but (3) and (5) remain as unrelated, unknown quantities, to be solved from one equation. The value of the test must, therefore, depend upon purely empirical knowledge. Penzoldt, Ewald and Boas state that the test is reliable and that cases have been observed in which absorption has been delayed till half an hour or more after the administration of the capsule. The writer, after using the test in a considerable

number of cases, with an average result of twelve minutes, encountered a series in which the time was suddenly increased to from forty to fifty-five minutes. An examination of the capsules showed that they were composed of some form of gelatin which would not liberate the salt until digestion had taken place. It would scarcely be fair to ascribe all cases of delayed elimination to the same cause; in fact, the writer had under observation a medical student whose elimination was repeatedly found to be slow, though capsules similar to those used by him showed normal results in other cases. Still, a foreign body cannot be considered an ideal test of normal absorption of organic nutriment, and this test, to be of even suggestive value, requires a very careful regulation of circumstances. It should always be used at the same period of digestion, let us say from an hour and a half to two hours after a meal, when digestion is at its height. In order to reduce to a minimum the delay of elimination, the secretion of saliva should be stimulated by having the patient chew some simple gum or roll a pebble about in the mouth. All traces of the salt must be brushed from the outside of the capsule, which must be swallowed with a sufficient and uniform quantity of water, say 50 c.c., at the temperature of the body. A control test should be made with a similar capsule so that the time of solution may be subtracted from the total. What the writer considers much better tests of the gastric absorption will be referred to under the head of the chemical examination of the stomach-contents.

It is doubtful if more than temporary delay of absorption occurs independently of some form of indigestion. Certainly, one would not be apt to suspect it in an apparently healthy person, nor would the latter be inclined to allow an examination of the stomach-contents. Still, it is altogether probable that there are wide variations in the normal absorptive power, and that on this ground is to be explained the fact that many persons are fat and well nourished on scanty diet, while others who eat larger quantities of food are lean and, perhaps, weak. It is impossible, however, to draw a practical distinction between absorption and assimilation. Granted that absorption is deficient, there is no treatment especially adapted for this condition. General hygiene, exercise, regulation of chemical digestion, the administration of strychnine, which is also indicated for the relief of muscular and glandular atony, possibly more direct circulatory stimulants, suggest themselves as appropriate.

THE GASTRIC SPHINCTERS. The action of the gastric sphincters is a somewhat intricate one. Unfortunately, the passage of food into the stomach meets with no opposition, so that, of all organs, this is the least protected against abuse. Physiologists disagree as to whether the pylorus should allow the chyme to empty into the intestine little by little, at intervals during the whole course of digestion, or whether the passage of chyme occurs normally in waves, beginning after digestion has been quite thoroughly accomplished. The writer, from personal observation, holds the former theory, though it is not so enticing as the latter.¹

On auscultation over the stomach, while the patient drinks, the entrance of water is audible, and sometimes there is a double murmur, the latter part of which one would naturally interpret as the leakage back of air through the cardia. Ewald, however, describes the sounds in an entirely different way, regarding the second murmur as the constant one and the first as an added preliminary sound. These murmurs do not seem to have any very practical value from a clinical stand-point.² In fact, the question whether liquids, gases, and semi-solid stomach-contents shall be regurgitated through the cesophagus seems to depend less upon spasm or relaxation of the cardia than upon normal individual differences. Other things being equal, the person who can vomit easily, without retching, and who can raise gas from the stomach, suffers less than one who—like a horse—can scarcely vomit at all. Habitual rumination, which has been sometimes classified as a gastric disorder depending on relaxation of the cardia, seems to be due rather to the power of voluntarily aspirating the contents of the organ. Those who have this power usually consider the practice a great pleasure, and, while the habit is a disgusting one, there is no manifest reason for counting it as a disease.

GASTRIC MOTILITY. The motor power of the stomach depends largely on nervous and systemic conditions. During lavage, one stomach will exert a pressure equal to ten or twenty feet "head" of water, while another, with apparently the same amount of retching, will merely effect an oscillation of the water in the

¹ Later investigations have disproved the old theory of an emptying of the stomach only after a definite period of digestion.

² It seems better to discard the notion of a first and second murmur. The duration of cesophageal peristalsis can be measured by noting the number of seconds between the elevation of the hyoid in swallowing and the occurrence of the murmur at the cardia. A long delay indicates general sluggishness of the alimentary musculature.

funnel. We cannot, however, attach much clinical importance to this observation, any more than we can estimate a man's capacity for work by his ability to perform some athletic feat.

The salol test, not of the muscular power of the stomach, but of its promptness in emptying its contents into the duodenum, has now become quite well known. This test depends on the fact that salol does not dissolve in an acid medium, but is broken up into salicylic and carbolic radicles, in the presence of an alkali. The former is readily recognized in the urine by adding a few drops of ferric chlorid solution. It is assumed that the occurrence of the characteristic purple tint indicates that the salol has passed into the duodenum along with the stomach-contents, and that it has been decomposed by the alkaline intestinal juice, absorbed, and eliminated by the kidneys. The salol is given immediately after a meal, and the test is usually obtained forty or sixty minutes afterward. Obviously, the test cannot represent the final emptying of the stomach, but rather the preliminary leaking of chyme through the pylorus. The writer has modified this test to the extent of diminishing the dose of salol from a gramme, which has once or twice produced death, to fifty centigrammes. After a careful study of about twenty cases—to say nothing of many more in which the evidence was corroboratory, but in which possible sources of error were not so rigidly excluded—the writer has come to the conclusion that this test is worthless. In this series of cases the characteristic test was obtained at from half an hour to an hour and a half after the meal, without the slightest correspondence to the nature of the case. Like the potassium iodid test for absorption, there are many unknown quantities in the equation. Stein has shown that mucus aids in the solution of the salol, and Cornet has proved that it is actually absorbed from the ligated stomach, though after a considerable delay in healthy animals. In cases of subacidity and gastric catarrh, we have no guarantee that the salol has passed through the stomach unchanged nor, on the other hand, can we infer that a delay in the appearance of the test is always due to sluggishness of the stomach, for we have no assurance that the change of reaction in the intestine occurs as promptly as it should, nor that absorption and elimination are constant quantities. The writer has found that salol given some time after eating, when digestion is at its height, requires the same time for elimination as if it had

had to undergo the supposititious delay in the stomach. It will be appreciated that, given, on the one hand, a case of subacidity with sluggish gastric muscle and some concomitant catarrh, and, on the other, a case of superacidity with an irritable stomach, the salol test will quickly appear in the former, while in the latter the delay of overcoming the excessively acid reaction of the chyme may more than compensate for the rapidity with which the stomach-contents are discharged.¹

Huber has proposed a modification of the test, on the assumption that in the healthy organism all the salol should be eliminated in twenty-four hours, and that its persistence later than this indicates a delay in the stomach. At the outset, however, we are met with the contradiction of Cornet to the effect that fifty centigrammes of salol are not normally eliminated in so short a time. As the result of experiments the writer has found that the ordinary salol test and Huber's modification do not give confirmatory results, so that one or the other must be based on false premises. The existence of a fallacy is rendered highly probable by the consideration of these two cases. No. 1, a feeble, middle-aged woman, with chronic bronchitis and, probably, gastric catarrh, though too weak to allow careful physical examination. No. 2, a young woman, with temporary lack of hydrochloric acid, who recovered in the course of a week. In each case salicylic acid was found in the urine half an hour after the administration of salol with the last mouthful of a meal, although an excess of muscular action is inconceivable in either case. In No. 1 elimination required thirty-six hours; in No. 2 forty-eight, a discrepancy easily accounted for if we remember that mucus aids the solution of salol, but which cannot be explained by Huber's hypothesis, as there was no indication that the mild case of subacid dyspepsia was more atonic than the other serious case. In other instances the writer has found similar contradictory results, and the only logical conclusion is that no dependence can be put upon the salol test unless, possibly, under special conditions when other uncertain factors can be eliminated. In particular, the acidity of the gastric

¹ Ewald has recently denied the writer's conclusions, basing his opinion on experiments involving ligation of the pylorus. It is evident that anaesthesia or traumatic shock, or both, would cause failure of absorption; also, that solution of the salol could not be expected till some degree of catarrhal inflammation had developed. In several recent cases in which lavage shows the presence of chyme six to eight hours after a light meal, the salol reaction has appeared in half an hour.

juice must be insured, if necessary, by the administration of hydrochloric acid.

Klemperer has devised a test of gastric motility consisting in the introduction of a hundred c.c. of olive oil, which is allowed to remain two hours, when the siphon is used and the diminution in volume is noted and compared with a standard. A man who can be so certain of the position of his tube, and whose technique is so perfect that he can obtain even approximately quantitative results from such a method as this, is to be envied. In a series of experiments on a very tolerant patient with atonic dyspepsia, the writer found that the stomach disposed of about fifteen hundred c.c. of water in the course of lavage, lasting fifteen minutes. In many other cases, without making measurements, about the same loss has been noted. Auscultation and percussion, as well as the sensations of the patient, show that the loss is due to the passage through the pylorus and not to the absorption of the fluid. Olive oil is, in itself, a stimulant to peristalsis, and it is absurd to believe that we can manipulate half a glassful of this drug and obtain anything like reliable measurements of the amount left in the stomach after two hours.

We must accept the lamentable fact that we have no single brilliant test for the motility of the stomach. The muscular impulse during lavage, the results of palpation, percussion, and auscultation at the pylorus, the inspection of the stomach-contents at different times after a meal, the general muscular tone of the body, even the fulness or emptiness noticed by the patient, must be taken into account. We must bear in mind, also, the variation in the time of digestion depending on the nature and quantity of the food. The following table of observations made on healthy subjects to determine this point will be of assistance:

Prüger, 100 grammes of various warm and cold meats	2½ hours.
Penzoldt, 250 grammes of beefsteak	4¼-5 "
Walther, 200 grammes of fish	8½ "
Prüger, 100 grammes of egg	1½-3 "
Croce, 150 grammes of stewed peas, lentils, green beans, and other vegetables	4-4½ "
Prüger, 200 c.c. of carbonated water	1-1¼ "
Prüger, 200 c.c. of tea, coffee, cocoa, milk, etc.	1½-2½ "
Krieger, 500 c.c. of water, tea, coffee, cocoa, milk, beer, wine, etc.	1-1¼ "

Most authorities agree that seven hours is the extreme duration of gastric digestion in health. While it is not often necessary for the physician to determine the exact duration of gastric digestion,

the presence of food, or of indigestible residue dating back beyond the last meal—with the obvious exception of meals too near together—is significant of dilatation, actual or relative.

The writer has never encountered, or has never diagnosed, a case of atonic dyspepsia in the limited muscular sense which is insisted on by some authorities. Atony of the gastric muscle is usually associated with a failure on the part of gastric secretion, especially of hydrochloric acid. Such an association is a natural result of a common nerve supply to both muscular and glandular elements. Those who object to the application of the term *atonic dyspepsia* to a combined muscular and glandular weakness, do not furnish evidence that the strictly *atonic* dyspepsia occurs frequently enough to deserve a special name. Undoubtedly, all stomachs do not empty themselves with the same rapidity, but it is seldom possible to find such a degree of sluggishness on the part of the stomach, in the absence of other impairment of function, as to warrant us in considering its possessor in the light of a patient.

As to treatment, strychnine combines the virtues of a bitter with positive stimulation of motor power. Gastric faradism is of doubtful service. Between the external and the internal application of the pole it seems that the former should be preferred, unless we wish to get a decided mental effect in a hysterical case. The voltage of the induced current is so high that there can be little doubt of its "penetrating" power, while the passage of an instrument into the stomach should be avoided in the absence of some specific reason to the contrary, especially as experimental study as to the effect of intragastric faradism has yielded such contradictory results.

THE DIGESTIVE FERMENTS. Pepsin and rennet may be considered together. An excess is practically impossible; in fact, these bodies act qualitatively rather than quantitatively. A failure of either ferment is not common, and, when it does occur, it indicates very serious systemic depression or local atrophy. Gamgee has described methods of obtaining approximately quantitative results in the investigation of both ferments and their zymogens, depending on the digestion of stained fibrin in standard solutions of acid. For clinical purposes, a sufficiently accurate examination can be made by bringing the filtered gastric juice up to the standard hydrochloric acidity—2:1000—and noting the action on disks of boiled egg-albumin, which may be conveniently preserved in glycerin, or on the now official 50 per cent. solution of white of

egg. Practically, it is seldom necessary to test for either pepsin or rennet. In general fevers, acute gastritis, advanced chronic gastritis with anadenia, in carcinoma, and, in fact, in almost every disease as death draws near, the formation of ferments fails. The great commercial value of pepsin is based on a misconception. In the ordinary forms of gastric indigestion, whether due to functional or organic trouble, pepsin is the one thing about which we need scarcely ever concern ourselves. When pepsin is needed, the case is so serious and the incapacity of the stomach so great that it is not often good practice to administer pepsin. On the contrary, nourishment should be maintained by the bowel or peptonized foods should be given. In other words, the stomach that cannot furnish its own pepsin should not be regarded as a digestive cavity.

Almost the only use which the writer has had for pepsin in the last two years has been in cases that lie outside his regular practice. One of these cases was a suppurating wound of the hand with a slowly sloughing tendon-end; the other, an abscess of the abdominal wall, probably tubercular, though no bacilli were found in two examinations. In each case the wound was dressed with a solution of pepsin and hydrochloric acid and the usual dry gauze and cotton applied externally. Under the ordinary antiseptic dressing such wounds heal slowly, because there is much dead tissue that must be absorbed. In necrosis of bone, carbuncle, etc., many surgeons still prefer the old methods, which allow suppuration. Why? Because saprophytic germs actually digest the débris, as is shown by the presence of peptone in pus. The artificial digesting solution combines the advantages of both old and new methods. It is nearly aseptic, while the acid is positively antiseptic. While the range of the writer's practice is not such as to allow him the necessary experience in this treatment of surgical cases, it seems as rational as the attempt to digest a diphtheritic membrane, and it is to be hoped that a more thorough trial will be made by those who are frequently called upon to dress septic wounds.

In the course of typhoid fever and other conditions in which milk diet is indicated, patients are frequently encountered who do not digest milk on account of its coagulation in large masses. The writer remembers, in particular, a middle-aged woman, in fair general health, who vomited repeatedly curds as large as walnuts, and having the peculiar agreeable odor of the artificial product. The case was successfully, though not radically, treated

by the avoidance of milk for a time. The expedient of shaking milk with lime-water is time-honored, and it is well to remind patients who are on a milk diet that milk is a food rather than a drink, and that they must take it in small mouthfuls and mix it thoroughly with saliva before swallowing it. Whether we are to look upon the curdling of milk in large masses as an increase of the rennet function, or whether it is due to a superficial and essentially deficient action is hard to decide. The literature on the subject is very meagre and unsatisfactory.

SUBACIDITY. The most important consideration, not only in the diagnosis but in the treatment of gastric disorders, is the quantity of hydrochloric acid present. It has been proposed to classify even organic diseases on this basis, but such an attempt is an unwarranted generalization. Still, it is convenient to remember that the acidity is increased in typical cases of round ulcer; that it is decreased in mild cases of gastritis, and absent in most severe cases of gastritis and of cancer. But the notion that lack of hydrochloric acid is pathognomonic of cancer has been disproved. Cases of cancer, verified by autopsy, may be cited to show that this disease may be compatible with a normal or even an increased acidity. In fact, the entire absence of hydrochloric acid occurs in a surprising number of single examinations, and the investigation is thus simplified by the needlessness of quantitative tests.

In the writer's experience, about nine-tenths of all cases of functional dyspepsia—the expression is not tautological if we understand *dyspepsia* to mean the symptomatic side of any gastric disorder—fall into the subacid class, while about six-tenths of the examinations will justify the use of the term, non-acid. It has been proposed to make a threefold classification of dyspepsia according as there was found “hyperacidity, hypoacidity, or anacidity.” Such a classification loses sight of the important fact that an absolute or relative lack of hydrochloric acid is a difference in degree only, and that the condition may change from one meal to the next. It is also objectionable to attempt to establish a technical nomenclature in the present uncertain state of our knowledge, and it is especially unfortunate that words of such incorrect etymology have been proposed. A clearer conception of gastric neuroses may be had if we distinguish two general classes, characterized by depression and excitement, respectively. In neither will the ferments be at fault except in rare cases. In the

former, acidity and motility will be below par unless the condition becomes secondarily one of irritation from the development of vegetable organisms and the production of organic acids. In the latter, hydrochloric acidity and motility will be increased, pain will be present, and the condition will simulate or possibly may develop into peptic ulcer. In individual cases, contradictions may exist, or one function may be affected without the participation of other functions. Any classification that takes cognizance of the exceptional cases will prove puzzling from its complexity. Having in mind the general principles, each case must be studied and treated on its own merits.

The prognosis in subacid and atonic dyspepsia (note that one type is meant) is good, except that it may not be possible for the patient to regain the necessary degree of vital strength. The simplest cases are often tedious on this account, but it must be borne in mind that a purely functional gastric disturbance may depend on serious organic disease of other parts. Last spring there was referred to the writer a young girl, apparently in good health, save for fermentative dyspepsia and general depression. The latter was accounted for by a recent death in the family and by confinement in-doors on account of bad weather. The treatment consisted mainly of hydrochloric acid, iron, and strychnine. The passage of the tube was not allowed, though the patient expressed her willingness to vomit the stomach-contents after a test-meal. Five milligrammes of apomorphine failed to excite a response. Accordingly, the finger was introduced into the patient's pharynx and well down into the beginning of the œsophagus, so that the epiglottis and the posterior part of the larynx were palpated—all this without exciting vomiting or even gagging. A better proof of the atonicity of the case could scarcely be afforded. After several weeks' treatment, with some temporary benefit, the patient developed a broncho-pneumonia and was referred back to her family physician. The broncho-pneumonia proved to be the outbreak of tubercular disease, which had undoubtedly been latent, so far as physical signs were concerned—a careful examination had been made—but which had sufficed to determine the depression on which the dyspepsia depended. The death mentioned was not from tubercular disease, nor was there anything else in the history to suggest tuberculosis.¹

¹ A somewhat similar case has proved to be due to syphilitic dyscrasia; or, at any rate, to be amenable to antisyphilitic treatment.

Atonic and subacid dyspepsia may also depend on renal insufficiency. In well-marked cases of Bright's disease there are usually cardiac and hepatic complications, so that the circulatory derangement induces a gastric catarrh. In acute and in insidious chronic cases of nephritis the stomach, without developing any organic lesion, becomes an eliminating rather than a digesting cavity. In such cases lavage is of benefit, and it is often necessary to predigest the food. Too much attention cannot be given to the study of these cases, as the findings are not always typical. Thus, in a patient under observation from March to June, casts were never found, though there were dropsy and albuminuria. On March 3, 21.5 grammes of urea were passed—a normal amount, considering the small size of the patient and her lack of appetite. As the dropsy at this time was not marked, the bladder was washed out to exclude extrarenal albuminuria. In twelve hours, ending May 11, 2000 c.c. of urine were passed, containing only seven grammes of urea. June 12th the twenty-four hour sample contained 2250 c.c. of urine and twelve grammes of urea. The patient died in August. Many other microscopical examinations of the urine were made, casts never being found. So far as the gastric symptoms were concerned, they indicated lack of hydrochloric acid with moderate catarrh. The stomach was not dilated. It was at least two inches above the umbilicus, and passed the median line only by a quarter of an inch. Lavage was practised a few times to remove mucus and excrementitious products, but no examination was made after a test meal.

As a purely palliative treatment of atonic and subacid dyspepsia, it may be well to insure better digestion for a few days by administering papoid, the juice of pineapple, or by limiting the diet. The main treatment consists in the administration of hydrochloric acid and strychnine, with iron and arsenic, if there be special indication for them, otherwise not. The writer has had several patients referred to him with the history that the attending physician had given hydrochloric or phosphoric acid unsuccessfully, or even that the acid caused a sense of burning and distress. In such cases the examination of the stomach-contents has usually shown that there was a lack of acid, and its use has been persisted in, in spite of the history, taking care that it was given sufficiently dilute. Theoretically, the normal proportion of free acid being 1 : 500 and the bulk of the test-meal being, with water, 250 centimetres, fifty

centigrammes of absolute acid would be needed, corresponding to a teaspoonful of the official dilute preparation. Clinically, a fifth or a tenth of this amount is usually sufficient. The mouth should be rinsed after the administration of the acid. The secretory effort of the stomach should not be anticipated, so that the acid is best given at the height of digestion, about an hour or an hour and a half after eating. If it is necessary to increase the dose, it is better to administer the acid in portions, beginning earlier and repeating every half-hour for as many times as may seem desirable. If there is a special indication for a nerve tonic, phosphoric acid may be substituted; or, if there be diarrhoea, sulphuric acid may be used. The use of nitric acid or of nitro-hydrochloric acid seems to have no advantage, even when the liver is sluggish. While strychnine fulfils the indication of stimulating both secretory and motor functions, in cases of extreme failure of peristalsis, the intestine and stomach being both involved, *cascara sagrada* is of benefit. The diet should not be too limited. An appetite, such as no amount of chemically correct nutriment can excite, is necessary; while the patient has a right to expect the physician to "level upward" in bringing digestive power and dietary to the same plane. Tea, coffee, coarse vegetables, and greasy foods may properly be excluded, otherwise the patient should be encouraged and aided to follow his inclinations with judgment in selecting a meal.

Paradoxical as it may seem, a very common complication of the subacid neurosis is sour stomach. The common form of treatment by means of soda and bismuth or other alkaline mixtures is only palliative and is liable to be directly harmful, since experimentation has abundantly proved that the alkali destroys whatever pepsin exists in the stomach, and, to a less degree, pepsinogen. Such treatment is distinctly allopathic; it is rational so far as the emergency is concerned, but it is only a question of time when the acidity must be restored and gastric digestion proceed, unless the irritating and fermenting chyme is poured almost wholly undigested into the intestine. That serious intestinal indigestion, diarrhoea, etc., are not oftener produced, is due to the natural vigor of the combined alkaline digestion, not to good management on the part of the average physician. A little consideration will show that the acidity, although perhaps immediately irritating, is not the essential evil. Dyspeptics who are subject to sour

stomach may take lactic acid with almost as good results as follow from the use of hydrochloric acid, while vinegar and acid drinks may be harmless. The real irritants are unknown secretions of the fermentative germs, the acetic and lactic acids are by-products of no particular importance, except in considerable quantities. Butyric, caproic, and other organic acids seem to be more marked irritants. Sour stomach calls for antiseptics, not for alkalies—except in severe sick headache, when the aromatic spirit of ammonia is indicated—and, between menthol, carbolic acid, acetanilid, etc., on the one hand, and hydrochloric acid on the other, the choice ought to be in favor of the normal constituent of the gastric juice, unless there is a marked indication for combined antiseptic and local anæsthetic action.

In the treatment of any malady, in addition to the appropriate medication, we ought to raise the question, What can be done to remove the underlying condition? In the case of subacid dyspepsia there is either a nervous deficiency which prevents the proper elaboration of chlorids into hydrochloric acid, or there is an actual lack of chlorids. In many instances patients will say that they hardly ever eat salt; in other cases it is not possible to demonstrate a deficiency of chlorids. However, it seems to be rational, in either case, to urge a liberal use of salt in order to favor the formation of the corresponding acid.

SUPERACID DYSPEPSIA. The superacid neurosis being of an irritative type, we shall expect no interference with digestion except in the case of the carbohydrates, diastasis being inhibited by an excessively acid medium. The physician, however, feels the same kind of anxiety in regard to the rapid albuminoid digestion and absorption that he does in watching the accelerated pulse and increased functional activity of the body in sthenic fever. As to treatment, the writer takes exception to the use of the tube after the diagnosis is fairly well established. The indication is, plainly, to disturb the stomach as little as possible. The need for local sedatives, such as bismuth subcarbonate, charcoal, and other dry dressings, and for anæsthetics, like carbolic acid, acetanilid, cocaine, etc., may be great or it may not. Three methods have been suggested to antagonize the acidity: meat and other albuminoids to exhaust the hydrochloric acid in forming organic compounds; alkalies to form neutral salts; water to dilute the irritating secretion. But we must also remember that these same means, while

doing away with present acidity, call forth a greater secretion. The cautious man who essays to follow either of these neutralizing methods or that involving simple dilution will fail. This is no time for the pursuit of a golden mean. Successful treatment must go to one extreme or the other. Either the stomach must be kept almost constantly engaged, or it must be resting, with no stimulus of any kind to call forth its glandular activity. In the latter case the rectum may be depended on for nutrition for a few days, and meanwhile the store of chlorids must be depleted. Salt should be interdicted, whatever water is allowed should be distilled, and the writer would still further recommend the use of the hot-air bath to remove salines through the sweat-ducts. The later treatment should include tonic and hygienic measures, having in mind not so much the stomach as the overwrought nervous system.

There has been a growing tendency in the last few years to regard gastric ulcer as the culmination of the superacid neurosis, and to deny the older theory of digestion after infarction. In studying two series of cases of gastric ulcer by Stoll and Kugel, respectively, aggregating fifty cases, the writer found that acidity was normal in 50 per cent. of the cases in which examination had been made, increased in 25 per cent., and diminished in 25 per cent. There must, however, be some misapprehension as to the report or a difference of opinion as to what constitutes normal acidity, since Stoll, in a personal letter, states that his results establish the fact that acidity is increased in about 50 per cent. However, he does not regard increased acidity as a potent cause of gastric ulcer, stating that 33.3 per cent. of all cases of the latter are due to respiratory diseases and 20 per cent. to circulatory diseases, while various other systemic and local vascular changes are responsible for an additional number of cases. Still, the possibility of the development of gastric ulcer in cases of superacid dyspepsia must be greater than when the acidity is at its normal point, and this must be borne in mind as demanding great caution in the local treatment of the neurosis as well as of the established ulcer. Stoll's report shows, moreover, that the typical case of gastric ulcer is not that of an anæmic young woman, but rather that of a middle-aged or elderly person, there being no greater preponderance of women than would be expected from the fact that more men than women

die of traumatic lesions, leaving more old women than old men to die from any cause.¹

With gastric supersecretion, not marked by superacidity, the writer has had no experience.

THE USE OF THE STOMACH TUBE. For practical purposes, all instruments may be discarded save the soft-rubber stomach catheter. Small sizes are made for introduction through the nostril, but these are of value mainly in the forced feeding of insane patients. The most convenient size for promiscuous use is No. 10, but it is rather small for the extraction of a sample of the stomach-contents, while it is useless for the complete evacuation of the organ. The No. 12 tube has an external circumference of an inch and a half and a lumen of a quarter of an inch.

For cleaning the stomach, especially in poisoning cases and in dilatation when there are fragments of food left behind, the best form of tube is a large size with a square-cut stomach-end. The tube should be about six feet in length, though it is often convenient to insert a glass tube a short distance from the lips so as to expose the current to view.

The most convenient funnel is of hard rubber, though the soft rubber funnel may be used to hold one of glass or even of metal, if there is no chemical action to be feared. A pencil mark should be made at a distance from the internal end of fifty-five centimetres (twenty-two inches), the tube working best when the mark is at the incisor teeth, except in children, in extremely tall or short persons, and in those with considerable displacement or dilatation of the stomach. Some tubes are made with a band to mark this distance, and, unfortunately, many tubes have a band twenty inches from the internal end.

The interruption of the tube with a bulb is objectionable, as lodgement is afforded for bacteria and as there is apt to be a constriction of the calibre of the tube next to the bulb. The bulb is intended to aid in aspirating or forcing back masses of food that may occlude the stomach end. As it collapses during the outflow of the stomach-contents, the bulb must be worthless as an aspirator, while, to dislodge obstacles, the elevation of the funnel or the reverse action of the roller-pump, to be described later, is preferable.

¹ Perhaps the subject of gastric ulcer is more correctly conceived if we distinguish two types, (1) that of the text-books, occurring especially in chlorotic girls; (2) latent ulcer of the aged.

The contraindications to the passage of the tube—relative or absolute, according to the circumstances of each case—are as follows :

1. Degeneration of arteries, as in syphilis, apoplexy, and old age, especially when an aneurism has formed. Thoracic aneurism is generally considered the most dangerous kind, but it seems likely that rupture is imminent from the rise of arterial tension, not from the impact of the soft tube. Still, the most immediately affected arteries would be the internal ones.

2. Asthma and, in general, respiratory diseases that are apt to be exacerbated by any excitement or reflex spasm.

3. Heart weakness, especially of organic nature.

4. Pregnancy.

5. Gastric ulcer, superacidity and ulcerating cancer; acute inflammation in and about the stomach.

6. Hysteria, tendencies to laryngismus stridulus and other reflex spasms.

It is scarcely necessary to comment at length on these contraindications. Some are almost prohibitive, as aneurism ; some only relative, as hysteria. Laryngismus stridulus has occurred twice in the writer's experience from the passage of the stomach tube. The best treatment consists in the removal of the tube and the use of nitrite of amyl by inhalation. Nervous manifestations may be prevented by the use of one or two full doses of potassium bromid several hours prior to the passage of the tube. The bromid or any other medication is contraindicated if the physiology or the chemistry of digestion is to be investigated. The application of cocaine to the throat has proved worthless in the writer's experience, though it is highly praised by others. The gagging caused by the passage of the tube seems to be rather œsophageal than pharyngeal.

If the tube is passed, not for diagnostic, but for therapeutic purposes, we may relieve the retching by introducing a quantity of hot water, as soon as the tube reaches the stomach. The patient should be warned not to throw back the head, for, in this position, the œsophagus is curved so that there is greater pressure on the larynx and trachea. The tube should be introduced immediately after its withdrawal from quite warm water, and it should be pushed gently, when the patient swallows, so as to make its onward movement coincide with the peristaltic wave. If distressing reflexes

begin, the patient should be directed to breathe back and forth rapidly—nature's anæsthetic.

Besides these precautions, which are mainly for the patient's comfort, false teeth should be removed, and the tube should be pushed very carefully till it is certain that the larynx has not been invaded. Such an accident is not of common occurrence, but it should be borne in mind, and the tube should be withdrawn if dyspnœa manifests itself. Dyspnœa, however, is usually due to spasm of the glottis, though in a patient with small pharynx and large tonsils there may be such a diminution of breathing space as to add to the nervous sense of suffocation. The descent of a hernia should be guarded against.

The tube once in place, with the fifty-five centimetre ring at the incisor teeth, it should be held close to the lips by an assistant or by the patient. For one comparatively expert in the use of the tube, an assistant is rather a convenience than a necessity. After a moment's rest, the expression of the stomach-contents is begun—assuming that the tube has been passed for diagnostic purposes. Pressure is made against the stomach, while the patient breathes deeply, the hand following the expiratory movement and resisting that of inspiration.

Ewald speaks of this method as efficient, but it has usually been unsuccessful with any degree of force that the writer has considered safe. Undoubtedly, expression of the stomach-contents is always possible, if one is willing to use as much brute force as some men advise in practising Crêde's method of expelling the placenta. The best way to obtain a sample of the stomach-contents is by gentle suction, either with the aid of a form of aspirator bottle, as recommended by D. D. Stewart, of a Politzer bag, as used by Charles D. Aaron, of Detroit, or by stripping the tube with the fingers, or by the writer's roller-pump.

Fifty to a hundred cubic centimetres of stomach-contents usually suffice for any ordinary examination, and are all that can be obtained at convenient times after the usual test-meals. The process of digestion should be immediately stopped by the application of cold. The extraction of a sample of the stomach-contents is greatly facilitated by thorough mastication of the test-meal, while evidence of improper mastication is of diagnostic value. Thus, a patient who had denied the possibility of hurried eating as a cause of dyspepsia, vomited around the tube almost the entire steak which had

formed the meaty portion of the meal. Attention to this one point was the main element of successful treatment.

If the tube is to be used merely as a therapeutic agent, to cleanse a dilated stomach, or to remove mucus from and apply some medicament to the gastric wall, it is best to make an appointment six or eight hours after a meal, to avoid, as far as possible, the presence of food. To dissolve mucus, the best solution is one of sodium bicarbonate in hot water. To insure rapid action, a tablespoonful of soda is poured into the funnel and washed down with a little water, dissolving as it passes to the stomach. The viscid mucilage formed is diluted with more water, up to about a pint, and then withdrawn. This process should be repeated at least six times, and preferably ten or a dozen times. After having tried and discarded Turck's soap, the writer has adopted the use of a modified Dobell's solution as a detergent. Soda, borax, and oil of sassafras are dissolved so as to make a semi-saturated solution. This is still further diluted as used.

THE TUBE IN POISONING CASES. The round-end tube is practically useless for the removal of semi-solid masses from the stomach. The square-cut, large-sized tube, in connection with some form of aspirator or pump of not too great power, may be a useful substitute for the old-fashioned stomach-pump. In general, the best and easiest method of evacuating the stomach consists in irritation of the fauces or the hypodermatic injection of apomorphine. If, however, these forms of centric stimulation are unsuccessful, mechanical means would naturally take precedence over the use of local emetics which are, of themselves, irritating and, to some degree, toxic. There is a decided prejudice against the use of the tube in corrosive poisoning, on account of the dread of rupture of the stomach. Surely, the danger of wounding even an eroded stomach must be slight, and it would seem that the straining of the gastric wall would be no more from the reflexes excited by the passage of the tube than from the same reflexes aroused to clear the stomach by vomiting. If the patient happened to be one who was accustomed to the use of the tube, the preference would seem to be in favor of its employment.

MEDICATION OF THE STOMACH THROUGH THE TUBE. In using any drug in the stomach, not only the strength of the solution must be considered, but the total quantity of the active ingredient. It has been proved that substances in solution are absorbed.

from the stomach more rapidly than the solvent. Thus, of any active drug, the total quantity used should not much exceed an ordinary dose. Fatal accidents have followed the disinfection of the stomach by solutions of carbolic acid which would be perfectly safe for external use. Even borax and boric acid must be used with caution on account of the possibility of renal irritation. In general, cleanliness is to be preferred to antiseptics in lavage of the stomach. If any chemical antiseptic is to be used in the stomach, it is best to employ the normal constituent of the gastric juice, hydrochloric acid, or some of the slowly soluble organic compounds such as salol, menthol, benzo-naphtol, etc., which may be given with the food.

In cases of catarrh of the stomach an astringent may be called for, in spite of the fact that the prolonged use of tannic acid in tea and coffee is a prolific determining or contributing cause of subacid dyspepsia, with slight concomitant catarrh. If we decide to apply an astringent to the stomach, let us apply it evenly to the entire surface of a clean mucous membrane. In other words, let us introduce it through the tube after lavage, drawing out the tube far enough to allow all the gas to escape from the upper part of the stomach, so that every gland of the mucous membrane shall be bathed. *Hydrastis* and *pinus canadensis* are excellent astringents for use in the stomach.

Many authorities have ascribed to silver nitrate the miraculous power of avoiding mucus and epithelium in the upper digestive passages, of reaching in pill form all parts of the stomach, or at least all the parts that needed treatment, and even of having a special selective action on the biliary radicles. The child-like faith that supposes laws of chemistry and mechanics to be set aside in favor of this drug is a remarkable instance of the survival of old medical superstitions. If silver nitrate is to be used in the stomach, let it be used through the tube, so as to exclude the possibility of its decomposition before reaching the stomach and so as to insure the equal medication of the entire gastric wall. Although four grammes of silver nitrate may be used in the colon, there is not the provision for spontaneous evacuation from the stomach, and a much less amount should be used. Most authorities state that danger of argyria does not begin till nearly two grammes have been given. Thus, a gramme of the salt, dissolved in a litre of water, might be used safely, if not repeated too often.

As a combined antiseptic, anæsthetic, and stimulant to the blood-supply and glandular activity, the writer has used for some time a 3 per cent. solution of menthol in purified petroleum. When a sedative action is especially needed, camphor may be substituted for or added to the menthol. Salol, also, makes a useful solution in mineral oil. Such solutions are known to act well on the mucous membranes of the nose and throat and, having accidentally discovered that the spray could be passed through the stomach tube, the writer was led to extend their use to such conditions of the stomach as catarrh, dilatation, and atonic dyspepsia, especially in the presence of fermentation and pain.

That the spray actually reaches the stomach is proved: (1) by the fact that the patient usually tastes the drug employed, a phenomenon explicable either on the ground of regurgitation around the tube or of absorption and elimination by the salivary glands; (2) by the occasional escape of vapor around the tube, showing at the mouth and nostrils; (3) by the possibility of catching the vapor after its escape from the stomach, in an inverted bell-jar, over water. The roller-pump is of great service in emptying the stomach after lavage and before introducing the vapor, though the stomach must be inflated and allowed to collapse several times before the liquid is entirely removed. The spray is introduced through the same tube used for lavage, and from an ordinary hand atomizer.

Under the general head of medicaments used through the stomach tube must be considered the therapeutic value of water. Unless there is some special indication for emptying the stomach it is well to leave five hundred or a thousand cubic centimetres of water when the tube is withdrawn. This expedient is of especial benefit in cases complicated with lithæmia, uræmia, or various degrees of cholæmia, even the mild ones associated with early hepatic sclerosis. Free diuresis usually follows, if not, an almost equally salutary diarrhœa sets in. The sclerotics lose their yellow tint, nervous symptoms abate, and the gain, not only in digestive power but in general vitality, shows that a considerable quantity of effete products has been literally washed through the emunctories.

It must be borne in mind that lavage, like any other *bath*, is of value, not only for purposes of cleanliness, but on account of the possibility of applying heat and, theoretically, cold. Practically

speaking, the conditions of active hyperæmia and inflammation, which are benefited by the local application of cold, contraindicate the use of the tube and call for the administration of small lumps of ice. Thus, the thermic effect of lavage is usually limited to that of hot water.

THE TUBE AS A DIAGNOSTIC INSTRUMENT. In the physical examination of the stomach the tube plays an important rôle, comparable to that of the internal hand of the gynecologist in the "combined method" of pelvic examination. The round-end tube is an elastic sound, of value in the diagnosis of dilatation of the stomach and of diverticula and strictures of the œsophagus. Through the tube the stomach may be filled with air or water, or both, to facilitate examination, whereas, otherwise, the distention of the organ is largely a matter of accident. Gaseous distention by means of the successive administration of a carbonate and an acid is somewhat dangerous, and is much more worthy of "Peck's bad boy," who employed this method as a practical joke, than of the physician. Given a stomach-tube and an atomizer or syringe-bulb, the stomach can be filled with air to the proper degree of distention, and, after percussion, auscultatory or otherwise, the air can be allowed to escape and water may be substituted for part of it. With the stomach containing both air and water, a beautiful contrast is afforded between the tympany of the colon below and that of the stomach above, and the flatness of the intermediate zone. By having an assistant introduce air through the tube, the breaking of bubbles may be heard at the level of the fluid as a metallic tinkle.

In a case of hour-glass contraction seen in consultation with Dr. C. C. Frederick, a most extraordinary result was obtained from filling the stomach with both air and water. By auscultatory percussion, this stomach was shown to be quite deeply indented at the middle of the greater curvature. After the introduction of water, the part of the stomach above this constriction was found to have become flat on percussion, whereas the lower—or here, rather, the distal—sacculum was still tympanitic.

It has been proposed to diagnose gastric dilatation by filling the stomach with water, then withdrawing and measuring the amount. Such a method is mechanically correct, but not quite safe. The patient, before each lavage, should be cautioned to give notice by some signal—few patients realize that they can talk with the tube

in place—of any feeling of dragging, weight, or fulness in the stomach. Even in the absence of these symptoms, it is unwise to introduce more than a litre or a litre and a half of water, unless one is thoroughly familiar with the case and has gradually led up to the employment of a larger amount. The very fact that the stomach can accommodate an unusual quantity of fluid is the best possible reason why it should not. There is also to be considered the immediate danger of strain upon the wall of the stomach that is the seat of ulcer or ulcerating cancer, and of the weight of a fluid so heavy as water, dependent upon the delicate ligaments of the abdominal cavity.

Some one has proposed a less dangerous but more ridiculous method of estimating the capacity of the stomach, by noting the change of level produced by adding given amounts of water. It is an interesting experiment to notice the correspondence between the level of water in the funnel of the tube and that in the stomach, as determined by percussion. The variations of internal pressure with respiratory movements and gastric reflexes are plainly visible. Some idea may also be formed of the motor strength—or, rather, *tone*—of the stomach by observing the difference between the internal and external level. If all stomachs had the same shape and inclination, the estimation of size by the method suggested would be perfectly feasible, but a study of the contours of stomachs shows that they vary considerably in the following particulars: (1) the degree of separation into two compartments; (2) the inclination of the axis, which is more nearly perpendicular in tall, long-chested persons, and almost horizontal in fat persons who have little muscular tone; (3) the shape; (4) the size. Whether we assume some particular contour as the normal type or not, there will be found considerable variations compatible with health and still greater deviations in those who apply for medical treatment.

While the stomach cannot be accurately measured by hydrostatic tests, it is often of interest to know how much water is used during lavage and how much returns from the stomach. This information can be obtained without delaying the patient, by having in readiness a number of wine bottles, holding from three hundred to five hundred cubic centimetres, as indicated by strips of adhesive plaster. Open-mouthed bottles may be converted into graduates to measure the outflow, and an assistant can empty these

and tally the results. Usually a litre or more is retained within the system, partly by immediate absorption, but mainly by passage through the pylorus.

EXTERNAL EXAMINATION OF THE STOMACH. By inspection, little direct information is obtained concerning the stomach, though we may determine the tone of the abdominal walls, the presence or absence of jaundice and ascites, and note if there be distended veins, indicating hepatic sclerosis or some other obstruction to the return flow of blood. We may also learn whether nutrition has been previously influenced by rhachitis or pregnancy, and whether constriction of the waist in women has been extreme. Occasionally, in a dilated stomach, the peristaltic wave is visible.

Palpation affords probable but not positive evidence for or against the existence of a tumor. The nature and anatomical connection of an enlargement must be determined by other means. Succussion, a combination of percussion and palpation, may enable us to detect the wave of a dilated stomach.

By percussion the gastric tympany can be differentiated from that of the colon, which is about a semitone higher in pitch, and from the pulmonary resonance. Where the left lobe of the liver overlaps the stomach, percussion usually elicits gastric tympany. For the purpose of outlining the stomach, the easiest and most delicate method is the auscultation of vibrations set up by percussion or by the application of a tuning-fork over the gastric area. A number of students, taken at random, who were not experts at physical diagnosis, and most of whom had never even heard of auscultatory percussion, were able, at the first trial of this method, to distinguish stomach from colon, liver, and lung. The method has also been severely tested on the cadaver, and the results verified by the section.

The determination of the gastric area is of prime importance in deciding for or against dilatation. We must recognize three classes of dilatation of the stomach: (1) the high grades due to some organic obstruction at the pylorus; (2) the mild grades due to atony of the muscular coat and to increased pressure from within on account of over-eating, over-drinking, slow digestion, and, especially, subacid dyspepsia with the formation of gases of fermentation; (3) a sagging or ptosis of the stomach, in which there is the same atony as in the second degree of dilatation, but in which the weakness has not yet resulted in an actual increase in size. In

other words, we must consider the matter from a physiologic rather than from an anatomic point of view.¹

Uncomplicated gastric dilatation is almost an impossibility. The high grades depend upon cancer, cicatrizing ulcer, or some pathological process outside the stomach, causing pressure upon the pylorus. Gastric catarrh almost inevitably develops. The milder grades are usually due to some neuroses, and, occasionally, in fevers or other states of vital depression, an acute dilatation develops in a few days. But whether the dilatation depends upon a primary neurosis or follows some dyspeptic trouble in a purely mechanical way, it will almost always be associated with subacidity. (It will be noted that the words subacidity, superacidity, etc., without qualification, refer to the secretion of hydrochloric acid, not to the development of acids of fermentation.)

The diagnosis of the high grades of dilatation is a comparatively easy matter, and it is referred to elsewhere; in the case of the milder types, we must consider not so much the absolute size of the organ as the more subtle question whether there has been undue yielding of the gastric wall. The size of the patient, the habits of eating and drinking, the general muscular tone, the dislocation of the stomach by corsets, the chemism, must be considered. As an arbitrary rule, we may say that the stomach should not descend lower than three-quarters of an inch above the umbilicus, nor should it pass more than a quarter of an inch to the right of the median line, unless in the form of a slender prolongation, representing pylorus and duodenum. These statements apply to the clinical results of percussion, not to the anatomic position of the stomach, which normally includes a considerable area on the right side.

Ewald and, more particularly, Bouchard, who considers gastric dilatation as a cause of a large share of the ills to which human flesh is heir, fail to state the exact anatomic basis on which they establish a diagnosis. Combining the symptomatology recognized by these two authorities, it would often be difficult to differentiate gastric dilatation from subacid dyspepsia, neurasthenia, arthritis deformans, and several other diseases. Accepting these premises, it would be quite proper to consider gastric dilatation of mild grade

¹ The writer would now censure his own classification. Ptosis should be distinguished from dilatation, being essentially a prolapse due to stretching of ligamentous support. However, the differential diagnosis is not always easy, and the two conditions predispose to each other.

as a common and very serious disease, even if digestion were well performed, at the time of the examination. It does not seem warrantable to ascribe an ultimate failure of digestion or even an organic disease of the stomach to a "dilatation" that has existed for years without occasioning unpleasant symptoms. Such a view recalls too strongly the gynecologist whose nulliparous patients are all treated for antelexion of the uterus. Nevertheless, fully half of a digestive practice is made up of cases involving more or less gastric dilatation and motor atony.

Having once outlined the stomach, the problem presents itself, how best to record our findings either graphically or verbally. After considerable experimentation, it seems best to discard the printed blanks, using, instead, a life-sized tracing of the marks of the dermatograph. Such tracings, though rude, are comparatively exact and reveal individual peculiarities as the ready-made charts do not. By means of a style, these rude tracings may be indefinitely multiplied. The verbal description of the human body is not, at present, on a satisfactory basis. The nine regions of the abdomen are not used with uniformity, while most clinicians have so far forgotten their anatomy that their descriptions are either incorrect or are vague for the sake of avoiding a conspicuous error. Variations in "build," in shape on account of the deformities of tight lacing, rachitis, etc., in protuberance of the abdomen, are so marked that the different anatomic regions vary considerably. Especially is this the case with the hypochondriac regions.

On the whole, the umbilicus, though not a stable landmark, is the most convenient one, and it does not seem to vary more than the ensiform cartilage and the lower ribs. It has occurred to the writer that a description could be based on a system of right-angled co-ordinates centring at the umbilicus. For locating small areas, an even more convenient method would be to consider the abdomen as a map and to use the words referring to the points of the compass, reckoning distances from the umbilicus, the median line, etc. Such a method has the sole objection of incongruity, it has the great advantage of enabling a mental picture to be formed almost instantly from a description.

In high grades of dilatation the stomach-wall is thickened, so that peristaltic waves, in driving gases of fermentation from one part of the organ to another, occasionally bring the anterior and

the posterior walls of the stomach together, thus forming evanescent areas of dulness, in the midst of tympany. It is possible that, in certain cases, the same phenomenon might be observed by palpation, like the Braxton-Hicks sign of pregnancy.

Auscultation of the deglutition murmurs has already been referred to. Except for the time involved, auscultation would afford an excellent means of determining the passage of the stomach-contents into the duodenum. This test can easily be made during lavage, and it should be tried often enough for physiological information.

The writer would also propose the following test for gastric acidity when it is desirable to dispense with the formal examination of the stomach-contents. About an hour and a half after a meal, which need not be a regular test breakfast or dinner, but which should consist of a moderate amount of easily-digested food, the patient drinks thirty cubic centimetres of a concentrated solution of sodium bicarbonate, while the physician listens over the gastric area. In cases shown by repeated examinations of the stomach-contents to be subacid, or nearly non-acid, no sound is heard. In other instances, including examinations on normal individuals, effervescence is distinctly audible. Knowing, from this examination, that the stomach has a marked acid reaction—and the organic acids do not produce nearly so much effervescence as does hydrochloric—we have to differentiate between super-acidity, a not very common condition, normal digestion, and quite a marked degree of acid fermentation. Such a differentiation is not a very difficult matter.

Manifestly, no such trick can take the place of careful chemical examination. The test is a makeshift when the passage of the tube is impracticable, but it has positive value in noting the progress of a case after one or two thorough examinations. For example, a young woman in whom several examinations have demonstrated non-acidity, and who is, therefore, taking hydrochloric acid one hour P. C., presents herself three-quarters of an hour after taking the medicine, and the application of the test shows marked effervescence. It is decided to omit the acid in order to ascertain if the stomach is able to supply its own demand. Three days later the test is repeated and no response is elicited. In order to make sure that the effervescence has not been inaudible, a little very dilute hydrochloric acid solution is administered,

and a brisk effervescence is heard. The indication to return to acid treatment is plain.

In another case a patient presents herself for the first time in the afternoon, at a convenient time after a meal, which, however, is not of a suitable character for routine examination. It is desirable to form a general idea of the nature of the case before resorting to the passage of the tube. The stomach is already tympanitic, and the patient complains greatly of belching of gas and of tension after eating. The soda-test is followed by moderate effervescence. Here the acidity must be of an organic nature, and the administration of hydrochloric acid is still called for, to aid digestion and to combat fermentation.

CHEMICAL EXAMINATION OF CHYME. With the exception of the tests for albuminoids, enough clear liquid can be sucked up with a pipette from the stomach-contents for any ordinary qualitative analysis. Acidity, especially hydrochloric, is most accurately determined from an examination of the unfiltered mass. As mucus may delay the process of filtration, the chyme should be filtered in the cold to prevent the progress of digestive or putrefactive and fermentative changes. A centrifugal machine is a convenient, though not a necessary, addition to the laboratory. Otherwise, the reagents and utensils for the clinical analysis of chyme need no description.

ACIDITY OF THE STOMACH-CONTENTS. Except in the case of a massive hemorrhage, or of aspiration of the intestinal juice by retching, the stomach-contents can scarcely have an alkaline reaction. The fluid from a quiescent stomach is neutral, unless the irritation of the tube has been sufficient to excite a secretion of hydrochloric acid. During digestion the stomach-contents are, practically, always acid. We must determine whether the acidity is due to acid phosphates, acid albuminates, organic acids, or hydrochloric acid. Both litmus and phenol-phthalein react with acid albuminates, acid phosphates change the latter only. A number of aniline dyes serve to distinguish between combined and free acidity, reacting with beautiful color changes only in the presence of the latter. Gentian violet, tropeolin 00, and, most satisfactory of all, Congo red,¹ are the ones in common use, turning sky-blue, magenta, and navy-blue, respectively, with most free

¹ Benzo-purpurin is slightly more sensitive than Congo red, turning dark blue.

acids, the exceptions including carbolic, tannic, boric, picro-nitric, etc., which do not react with all the dyes and which are not usually thought of as acids.

Although a great many organic acids may be present in the stomach during the digestion of certain vegetables, there are only three which are apt to be present after an ordinary meal and which need to be considered. These are acetic, butyric, and lactic acids. The etymology of the last two words is misleading, all three acids being developed from carbohydrates. Butyric acid may be found in abundance after meals from which butter and other oils have been rigorously excluded, and it is in no sense a fatty acid. Lactic acid does not necessarily depend either upon the presence of galactose of milk nor of sarcolactic acid of meat. It is present in almost all forms of breadstuffs. Butyric and acetic acids are usually recognized by the odor, but the following differential color-tests may be of service, though not always marked when the characteristic odors are present.

	Methyl Violet.	Congo Red.	Tropaeolin 00.
HCl and other mineral acids .	Sky-blue.	Navy-blue.	Magenta.
Lactic acid	Similar to HCl but less marked.		
Acetic acid	Blue with purple tint.	Blue.	No reaction.
Butyric acid	Blue.	Dirty purplish blue.	No reaction.

The bacillus butyricus can be recognized under the microscope as an arched rod. In some cases butyric far exceeds in quantity the other acids, and the corresponding germ seems to be present in the stomach as an almost pure culture. Two butyric acid bacilli have been described, differing somewhat in thickness. As to the other organic acids, their germs are not recognizable by rough clinical tests. It is said that there are at least six lactic acid bacteria, yet Boas appears to have shown that lactic acid is not produced in the stomach in appreciable quantities except in cancerous disease, although it is usually introduced with food. Penzoldt has demonstrated that the canary-yellow tint which lactic acid and lactates strike with dilute solutions of ferric chlorid, with or without carbolic acid to disguise the original color of the ferric chlorid, is imitated more or less closely by cane sugar, grape sugar, alcohol, glycerin, and egg albumin, so that Uffelmann's

reaction is present throughout normal digestion. The writer has verified the truth of this statement for the substances mentioned, though he has occasionally encountered samples of stomach-contents in which Uffelmann's reaction was not found.

To be explicit, it must be admitted that, with chemically pure reagents, slight differences of color are noticed in applying the ferric chlorid test to the various substances named, but these differences are not sufficiently marked to be of any analytical value. To be of practical use, tests as to the presence of lactic acid must be made on the watery solution of an ethereal extract. It is now insisted that the ether must contain no trace of alcohol. The writer would suggest the following device: Extract the sample with ether and ignite. After the mixture of ether and alcohol has burned off, dissolve the residue and apply either the ferric chlorid test or Boas' iodoform test. A better chemist than the writer objects that there would still be a trace of alcohol, but, after igniting ether that did contain alcohol and that reacted to the ferric chlorid test, the residue gave a negative result. On the other hand, the ignition does not interfere with the reaction for lactic acid when the latter is present. In general, organic acids are normally present during the first hour of digestion. Later, after the light test-meal, free hydrochloric acid should be present in such abundance as to inhibit fermentation, while the organic radicles introduced with food should have been absorbed. It is not usually of importance to know just which organic acid is present, but we should know whether or not the stomach is the seat of fermentation.¹

Although both mineral and most of the organic acids react with the aniline dyes, the former have the power to strike a crimson tint on evaporation with phloroglucin-vanillin or resorcin and saccharose. Either test is delicate enough to recognize hydrochloric acid (the only mineral acid to be encountered in the stomach, unless from medication) in a dilution of 1 : 20,000, so that, at the height of digestion, a 1 : 40 dilution of the stomach-contents should still react faintly. By successive dilutions of the stomach-contents, approximately quantitative results may be obtained. Exact estimations of free and combined acidity, though valuable for physiological

¹ Ferric chlorid solution changed in color by adding gentian-violet is a happy mean between the extremes of a too delicate test and one not delicate enough. A yellowish-green tinge indicates more than the normal amount of lactic acid. Boas' test is now known to be merely a roundabout estimation of fermentation, and not at all pathognomonic of cancer.

purposes, are too tedious and expensive for clinical use. The writer uses paper wet with the various aniline dyes for the various tests concerning acidity. These papers, though not quite so delicate as the liquid tests, are much more convenient, and, apparently, retain their reactive powers indefinitely.

CARBOHYDRATE DIGESTION IN THE STOMACH. The change of cooked starches into maltose proceeds, to some extent, in the stomach, unless prevented by too great acidity, either hydrochloric or organic. The writer has been unable to find any direct statement as to the absolute amount of starch converted. While Bunge estimates the parotid saliva at from 800 to 1000 c.c. daily, Mitscherlich estimates the entire daily secretion at only 300 c.c. According to Gamgee, 100 c.c. of saliva should convert ten to seventeen grammes of starch, so that the achromic point is passed in five minutes. According to Miahle's experiments, each cubic centimetre of saliva should convert two grammes of starch into maltose, if ample time is allowed.

The following experiment will show that insalivation is not usually sufficient to insure complete conversion. Immediately after a meal, which had not been sufficient to quench the appetite, the mouth and teeth were thoroughly cleansed. A good-sized mouthful of bread was masticated with unusual care. It was then divided into two parts; one was mixed with a 1 : 2000 solution of hydrochloric acid; both were kept at the body temperature. Testing, first at intervals of five minutes, then of fifteen minutes, it was found that starch still remained in each part at the end of two hours and a quarter.

There is a common misapprehension that starch should not be found in the stomach-contents later than an hour after a meal. Raw starch remains as such till it is changed by the pancreatic ferment. Even the small amount of starch contained in a test-meal may not be entirely converted; in fact, it is rarely absent in the semi-solid portions of the stomach-contents of those whose digestion calls for investigation. In a perfectly normal individual, masticating thoroughly, the twenty-five grammes of starch contained in the fifty grammes of moderately dry bread comprised in the test-meal should be digested by the saliva before diastasis is prevented by the development of a marked acid reaction.

There can be no question that starch should be absent from the *filtered* stomach-contents removed an hour after the test-meal. Its

persistence should lead to an examination for superacidity, for salivary insufficiency—which is extremely rare and which is easily tested for, by noting the starch and sugar reactions of pure saliva with a solution of starch—and for improper mastication, which is very common.

It is usually stated that sugar should not be found in the stomach-contents after the first hour of preliminary digestion. Penzoldt, however, has shown that we may normally find sugar as late as an hour and a half after a light test-meal. Its persistence indicates either that there is not enough acid to inhibit diastasis or that absorption is slow. The latter conclusion may be formed if a considerable quantity of sugar is present, provided that the analysis has been made promptly, but in a sample of stomach-contents that is not highly acid, conversion of starch may proceed, to some degree, after withdrawal from the body, even in the cold. When we consider that the diastatic ferment of the pancreas is twenty times more active than ptyalin, and that the pancreatic juice is nearly as abundant and much more concentrated than saliva (Roberts, Gamgee, and others), the question as to how much starch is digested in the stomach becomes relatively unimportant. So long as carbohydrates do not ferment into irritating acids, alcohol, and carbon dioxid, we need not trouble ourselves about their digestion in the stomach, except as it throws light on the important questions regarding absorption, acidity, and habits of mastication.

ALBUMINOID DIGESTION IN THE STOMACH. In considering albuminoid digestion, we are met with the same physiological and clinical obstacles to categorical statements encountered elsewhere. The combined intestinal digestion completes what the saliva and the gastric juice begin. The first leakings of chyme into the duodenum must contain almost entirely undigested albumin, while it has been shown chemically that comparatively little albumin is fully peptonized in the stomach. Not only does each authority describe differently the process of albuminoid digestion, but the intermediate products of digestion seem to vary according as hydration is effected by pepsin, trypsin, vegetable ferments—unorganized and organized—and acids. Thus, we are justified in disregarding the various elaborate schemes of digestion according to “anti-” and “hemi-moieties,” and in studying gastric chemistry as empirics. Civilized man eats but little albumin that has not been coagulated

by heat, while rennet curdles most, if not all, of the remainder. Thus, the presence of soluble acid albumin in the stomach-contents indicates that digestion has already begun.

This acid albumin is coagulated by boiling. The filtrate is examined by Heller's nitric acid test for albumose or propeptone, which is formed in the digestion of egg and plant albumin, but not in that of meat. Again filtering, what is usually considered to be peptone is precipitated by tannic acid or mercuric chlorid solution. Tannic acid cannot be used if there is starch present, as it also forms a precipitate with the latter. We must be sure, too, that the tannic acid has not been changed by fermentation into gallic acid, whose well-known therapeutic value is due to its failure to precipitate albuminoids. Albumose is more completely separated from peptone by precipitation with ammonium sulphate. Both propeptone and peptone are detected by adding their solutions in a ring above an alkaline solution of copper sulphate. This test may be employed just before boiling in examining for sugar, though strict adherence to chemical rules requires the elimination of albuminoids before testing for sugar.

Penzoldt has shown that, after any kind of nutriment, soluble acid albumin is not present normally in large amount, and that it should disappear about two hours after a hearty meal, peptonization at that time keeping pace with the solution of albumin. An hour or an hour and a half after a test-meal of a steak or chop, a slice of bread-and-butter, and a glassful of water, there should be a mere trace of albumin, very little propeptone, and a trifle more peptone. Considerable experience is necessary to enable one to judge correctly from these tests. A large amount of peptone indicates, not vigorous digestion, but slow absorption, as is the case if maltose, the soluble representative of starch, is in excess.¹

Gunzberg and Sahli have proposed to lump together the various questions concerning albuminoid digestion and note, by examining the saliva for iodine, the time required for the digestion of an albuminous capsule containing potassium iodid or of a string of fibrin confining the same salt in a piece of rubber dam. Even normally, after a hearty meal, and in mild grades of dyspepsia, after a test-meal, it will be noted that the chemical examination of the filtrate may give normal results, while undigested masses of meat may

¹ The writer is now engaged in a quantitative study of this subject.

be seen in the stomach-contents. Thus, it seems to be largely a matter of accident just what particle of food will be first attacked, but that, once seized upon by the gastric juice, digestion goes on nearly to completion.

Under the head of gastric absorption the writer has referred to an accidental experience with this test, in which several dyspeptic patients dissolved an albuminous capsule in from thirty to sixty minutes. There is no assurance, however, that other albuminous particles fared so well; while in some of these cases acidity was shown to be below par. We must conclude that there is no royal road to a diagnosis, and that the direct investigation of the stomach-contents cannot be superseded by the examination of secretions and excretions for artificially-introduced chemicals.

Gastric digestion may be divided into three stages: A preliminary hour in which starch, sugar, organic acids, and the lower grades of albumins preponderate, while hydrochloric acidity is gradually reaching the free point; an hour in which digestion is at its height, with organic acids absent and carbohydrates appearing in the semi-solid masses of food, if at all, while hydrochloric acidity has reached its maximum and albuminoids are more and more completely peptonized; a last stage in which absorption removes peptones almost as soon as formed, in which the gastric glands are becoming quiescent so that acidity is declining, while the chyme is passing into the intestine in comparatively large quantities. These stages merge into one another; they vary in absolute and relative length according to the bulk and the kind of food taken, so that in attempting thus to summarize the processes of gastric digestion, the light test-meal must be kept in mind and the statements made must not be accepted without necessary qualifications according to circumstances.

IN MEMORIAM.

ERNEST HART, Died at London, England, January 7, 1898, æt. 80.	Honorary Member.
WILLIAM S. PRESTON, Died at Patchogue, February 16, 1897, æt. 87.	Permanent Member.
JOSEPH E. WEST, Died at Utica, March 6, 1897, æt. 70.	Permanent Member.
THOMAS S. DAWES, Died at Saugerties, April 11, 1897, æt. 75.	Permanent Member.
ANDREW OTTERSON, Died at Brooklyn, April 14, 1897, æt. 75.	Permanent Member.
LE ROY MCLEAN, Died at Troy, April 23, 1897, æt. 66.	Permanent Member.
B. F. SHERMAN, Died at Ogdensburg, May 30, 1897, æt. 80.	Permanent Member.
WILLIAM C. WEY, Died at Elmira, June 30, 1897, æt. 68.	Permanent Member.
CHARLES O. BAKER, Died at Auburn, July 16, 1897, æt. 45.	Permanent Member.
WILBUR H. BOOTH, Died at Utica, September 25, 1897, æt. 45.	Permanent Member.
CHARLES W. HAMLIN, Died at Middleville, October 7, 1897, æt. 58.	Permanent Member.
CHARLES H. AVERY, Died at New York, November 2, 1897, æt. 63.	Permanent Member.
JOSEPH LEWI, Died at Albany, December 19, 1897, æt. 78.	Permanent Member.
H. S. CRANDALL, Died at Leonardsville, January 10, 1898, æt. 80.	Permanent Member.

OBITUARIES.

I. MEMORIAL OF WILLIAM C. WEY, M.D.,

ELMIRA.

BY WILLIAM WARREN POTTER, M.D.,

BUFFALO.

DR. WILLIAM C. WEY, of Elmira, died at his residence in that city, June 30, 1897, aged sixty-eight years. Though he had been in failing health for some months, his end came somewhat unexpectedly, yet serenely peaceful. Dr. Wey was born at Catskill, January 12, 1829. His father, William H. Wey, was a druggist, and his great-grandfather, Dr. Thomas O. H. Croswell, was a practising physician of note—both residents of that village. In his student days he became a pupil of Dr. Alden March, whose surgical assistant he was, and he graduated from the Albany Medical College January 23, 1849. He located at Elmira in the spring of the same year, which was before the village enjoyed railroad facilities, so that in the early years of his practice Dr. Wey led the life of the country doctor of the period. He soon acquired a surgical reputation, and went long distances into the country to perform difficult operations in the pre-anæsthetic period.

Early in the war of the rebellion (1861-1865) Dr. Wey was appointed an examiner of recruits; later he was appointed by the United States Government surgeon-in-charge of the hospital, and still later, medical officer to the Confederate prison at Elmira. In his early professional career he served as coroner of Chemung County, and was the first health officer in Elmira after it became a city; again, in 1894, he was appointed health officer, serving in that capacity until failing health compelled him to relinquish his duties. For six years he was a member of the Board of Education, taking great interest in the affairs of the board, and, it is needless to add, discharging the duties thereof with energy and fidelity. Dr. Wey was appointed, by Governor Tilden, a manager of the State Reformatory, March 5, 1875, and he served continuously in that capacity until his death, a period of over twenty-two years. He was also, for a number of years, one of the managers of the New York State Inebriate Asylum at Binghamton. He was a manager and senior consultant of the Arnot-Ogden Memorial

Hospital, and the last time he left his residence, a fortnight before his death, was to attend a meeting of the managers of the hospital. During the forty-eight years of his residence in Elmira he occupied but three offices; the first was in the old Dunn Block, corner of Lake and Water Streets, where he remained until the winter of 1853; he then moved his office to a house situated on East Water Street, where he remained until the autumn of 1876; finally he moved to the corner of Main and West Second Streets, which office he occupied until his end.

Dr. Wey was married, November 15, 1853, to Mary Bowman Covell, daughter of Dr. Edward Covell, of Wilkesbarre, Pa. Two children were born to them, both now living—Dr. Hamilton D. Wey and Mrs. Ray Tompkins, of Elmira. Mrs. Wey died in 1887, and his daughter married in 1893, since which time the father and son alone have occupied the family home.

Dr. Wey was elected President of the Medical Society of the State of New York in 1871, presiding at the meeting held the following year. He chose for the subject of his Presidential Address, "Medical Responsibility and Malpractice." It was a scholarly paper that attracted considerable attention, and evinced much knowledge of forensic medicine. His closing words were prophetic, though little did he dream, perhaps, that he would play so conspicuous a part in the reform predicted.

Said he: "With the profession rests the power to accomplish a reform of the system of medical education; such a thorough reform as will extend throughout the nation. Some among you, I know, have pictured to yourselves an ideal standard of preparation for the profession, including the processes by which a pupil is carried through the stages of growth in medicine to the possession of his degree, and so on to the higher positions to which his qualifications give him access. Through much strife, opposition, and discouragement such a change is surely coming. Not in your day, nor in mine, but in that future which awaits the greater development of our country, disenthralled medical science will stand conspicuously forth as teaching given from God."

Dr. Wey was chairman of the special committee on the code of ethics of the Medical Society of the State of New York, appointed by President Bailey in 1881, his colleagues being Drs. Agnew, Vander Poel, Ely, and Piffard. This committee presented a report in 1882, revising the code of ethics of the American Medical Association that had heretofore been in force in the State Medical Society. An exciting debate ensued, a substitute having been presented by Dr. Roosa providing for the abolishment of all written codes. Finally, however, the new code was adopted by a two-thirds vote, this action being ratified in 1883, and again in 1884. As a consequence, the Medical Society of the State of New York was disbarred from representation in the American Medical

Association, a condition that has continued to the present time. Subsequently the State Medical Society abolished all written codes, and is now governed by the only rule that obtains among gentlemen—that of honor.

Dr. Wey was chosen President of the State Medical Examining and Licensing Board at its first meeting, September 1, 1891, in which place he continued until his death. He was also examiner in physiology and hygiene, and through his scholarly attainments, interest in the work, and efficiency as an examiner and presiding officer, contributed largely to the success attained by the State Medical Examining Board in elevating the status of the profession of medicine.

Dr. Wey was a man possessed of great dignity of character, rare courtliness of manner, and was a representative of all that goes to make up the best type of nature's noblemen. In his chosen profession he occupied conspicuous eminence, which, through his scholarly learning, marked ability, and wealth of resource, contributed to make him easily the most eminent physician in the Chemung Valley, a statement that need in no wise disparage his colleagues. Above and beyond his profession, he was a man of accomplishment, well trained to thought and action, a resourceful debater and an easy speaker, a wit at the dinner-table, possessed of a musical voice, a winsome manner, and a sweetness of expression that made him socially one of the most attractive of men. It will not be easy to fill his place in the several official positions that he so ably and gracefully adorned, nor in social, professional, or civil life—in all of which he leaves a cherished memory and an inspiring example.

His obsequies were simple, only the ritual of the Episcopal Church, and that was all. His remains were followed to their last resting-place by the family, the Medical Society of the County of Chemung, the pall-bearers, and the State Medical Examining Board, the members of which latter body came from the four corners of the State to pay a last tribute of respect to the memory of their beloved colleague.

Thy laurels, with soft heart-dews wet,
Brighten as suns shall rise and set,
And tear-founts heave and swell to thee,
As to yon moon the heaving sea.

II. BIOGRAPHICAL SKETCH OF BENJAMIN F. SHERMAN, M.D.,

OGDENSBURG.

BY J. M. MOSHER, M.D.,

ALBANY.

DR. BENJAMIN F. SHERMAN died at his home in Ogdensburg, N. Y., Sunday morning, May 30, 1897. His illness dated from the first week in February, when he contracted a severe cold while in attendance upon the meeting of the State Medical Society. He recovered in a measure, but there was a noticeable impairment of vigor, and the end gradually came.

Dr. Sherman was a native of Vermont, born at Barre, May 24, 1817, and was therefore eighty years of age. He was the youngest of five brothers, all practising physicians. The family trace their genealogy to John Sherman, who came to Connecticut in 1634, and in Old England the record is perfect to Henry Sherman, who was born in Devon in 1516. Roger Sherman, one of the committee of five to draft the Declaration of Independence, was a cousin of Dr. Sherman's grandfather.

Dr. Sherman was educated in the Ogdensburg Academy, taught in the schools of the village, received his medical education at Pittsfield, Mass., and at the Albany Medical College, where he graduated in 1841. He began the practice of medicine at Hammond, where he resided two years. Thence he removed to Potsdam, where he remained about the same length of time, and then went to Ogdensburg, in 1845, which was afterward his home. In 1847 he married Miss Charlotte C. Chipman, of Waddington, to whom five children were born, three of whom survive.

Dr. Sherman was one of the most widely known physicians of the State. He took the deepest interest in public affairs, and was honored in many ways by his fellow-citizens. He was a stanch supporter of the State Medical Society, and had held the positions of President and Vice-president. He had also been President of the Northern New York Medical Society, and of the St. Lawrence County Medical Society, and was for nearly thirty years President of the Ogdensburg Medical Association. The last meeting he attended was that of the County Society, at Gouverneur, May 18th.

He was a recruiting surgeon during the war, and was for many years President of the Board of Pension Examiners. He was frequently called upon to give expert testimony as physician and chemist in the most important trials and litigations, and in this capacity has given evidence in many courts throughout the State.

The recital of the offices of trust and honor held by Dr. Sher-

man gives only an imperfect idea of his life. He belonged to the class of men whose individuality rises above such distinctions, and his character and traits will survive in the memories of those who knew him long after the recollection of the honors conferred upon him has passed away. He began practice when a medical education was difficult to obtain. He took long journeys through a rough country, when railroads were almost unknown, by the stage or by canal packet, to reach the recognized leaders in medicine and to profit by their instruction. Without other help than he earned by teaching school, he sought the best obtainable preparation at a time when the simplest exactions were required by the law, and when the community was glad to accept as physician any one of courage to assume its severe duties and responsibilities. Occasionally, in reminiscence, he spoke of the experiences of those early days. Starting on horseback, in the morning, perhaps at sunrise, with saddle-bags containing drugs manufactured by himself from native plants, and a few instruments, he made his long tour, not knowing what emergency or calamity might test his skill or his judgment before his return at night. He might be called upon for an operation in major surgery, or the delicate manipulation of the eye. In epidemics of cholera and smallpox of magnitude now almost unknown, he was abroad night and day, not the least of his duty being the removal of some deserted victim from the roadside to a suitable place, frequently his office couch.

Under such circumstances and conditions, he developed a strict sense of obligation and self-confidence, which led to positiveness of expression and opinion. This element of his personality carried the conviction of honest intention and the absence of ulterior motive, in which lay the strength of his character. It is not a little remarkable that he should have developed no prejudices. He began study and practice when medicine was in an entirely crude and empirical state, and he died at the dawn of an era in which medicine is to become one of the greatest triumphs of human accomplishment. He saw the birth of the specialties and the refinements and exactness accompanying their progress to the dignity of separate sciences. He passed from the era when open wounds were packed in sawdust or dirt, and the majority of compound fractures terminated fatally, to that of modern surgery. With every advance he kept pace, so that, in his eightieth year, his younger colleagues came to him for advice and borrowed his instruments and his books.

He needed not the reputation of membership in medical societies for advancement, but he attended more regularly than any physician in his part of the State. In 1884, at the most critical period in its history, the State Medical Society chose him President. He allowed none of the bitterness of that serious dispute to find its way into his heart, but manfully relinquished friendships which

had been very dear to him, because he saw no way except that which seemed to him right. His greatest faith was in the Ogdensburg Medical Association, and on only one or two occasions in thirty years did he miss the bimonthly meeting. When the St. Lawrence State Hospital was opened at Ogdensburg he saw the advantage to the hospital and association of co-operation, and received the physicians of the former to membership in the latter, thus giving a strong impetus to the medical work which has since made the new institution famous. And when, in the flush of prosperity, there was danger that the convivial feature should become prominent, he was quick to resist its encroachments upon the scientific work of the organization. The propriety of his reelection to the presidency of the association was never questioned; that the association might not survive him was often feared.

Such were some of the elements in his personality which led the association, in 1893, to pay him in a public dinner the highest compliment in its power, which endeared him to his family and his friends, and inspired the citizens of Ogdensburg, in public meeting, to take action upon his death, "to commend his career to the youth of the city as an example of those sterling qualities which raised him ever upward in the esteem of his fellow-men."

III. MEMORIAL OF JOSEPH LEWI, M.D.,

ALBANY.

By FREDERIC C. CURTIS, M.D.,

ALBANY.

At the time of his death, which occurred December 19, 1897, Dr. Joseph Lewi was the oldest practitioner of medicine in Albany. He was born August 17, 1820, in Radnitz, Austria, the birthplace, likewise, of both his parents. He got his preparatory education at the gymnasium at Pilsen, teaching school himself for the means to defray his expenses, and at the Academy at Prague, where he took the higher classical course and began the study of medicine. His subsequent medical studies were pursued at the Vienna University, where were then the great men Rokitanski, Hebra, Schuh, Hyrtl, Oppolzer, and Skoda, and where were the larger clinics, laboratories, and museums. Industrious and conscientious in his professional study, he did not neglect literature, music, and the classics, of which he was very fond and which he found abundant opportunity to cultivate in the company of Solomon Mosenthal, Leopold Kempert, and Moritz Hartmann, who

were his intimate associates and who all made reputations in the world of letters.

After graduating he returned to his native town and practised his profession for a year. At the outbreak of the March revolution, with which he sympathized, but whose success he doubted, he came to America for a home more congenial to him than the intolerance and despotism of Austria of that day promised.

Since 1849 Albany has been the place of his social life and professional work. He acquired here a large practice, a high standing in the profession, and the esteem of the whole community. His professional attainments, his literary accomplishments, and his liberal patriotism made him a good physician, a delightful companion, and a model citizen. Coming from a country of restriction to one of liberty, he entered into the spirit of American institutions; he immediately raised his voice in opposition to slavery and associated himself with the followers of Greeley, Beecher, and Garrison, casting his first vote for Fremont and Dayton, and, as he said not long before his death, voted for every candidate for President of the Republican party from the commencement. When the civil war broke out he was appointed by the Surgeon-general an adjunct member of a commission to examine physicians for the volunteer service, and in the dark days of the rebellion helped to form the United League. He was a member and office-bearer in the County Medical Society, and became in 1875 a member of the State Society, in which for years he was a senior member of the Board of Censors. He was on the medical staff of the Albany Hospital, being at the time of his death a consulting physician. He did not aspire to public office, but for twelve years served conscientiously as a member of the Board of Public Instruction.

He married, in 1849, Miss Bertha Schwartz, and fourteen children were born to them. Two of the six sons followed their father's profession: Dr. Maurice J. Lewi, now of New York, and a prominent member of this Society, and Dr. William G. Lewi, of Albany, connected with the work of the Albany Hospital and the Albany Medical College.

He was a man of genial disposition, of good heart and honest purpose. He accomplished much during the fifty years of his life in Albany, and not the least was to secure the affection and respect of all his professional associates and of all his fellow-citizens, and a lasting and grateful memory.

IV. MEMORIAL OF CHARLES W. HAMLIN, M.D.,
MIDDLEVILLE.By A. WALTER SUITER, M.D.,
HERKIMER.

THE death of Dr. Hamlin occurred October 7, 1897, at the age of fifty-eight years. He was graduated at an early age from the Whitestown Seminary, and finished his literary courses of study by graduation from the State Normal School at Albany.

He chose the profession of medicine, and began the study in his native town of Holland Patent in 1861; soon after he enrolled as a private soldier in the 57th regiment of New York volunteer infantry. His antecedents as a medical student and his aptitude for hospital service at once won for him the position of hospital steward, and he was assigned to duty from time to time in both field and general hospitals during the entire three years for which he was enlisted. After his honorable discharge from the army, he pursued his studies in the Bellevue Hospital Medical College of New York City, whence he was graduated in 1866. He began the practice of medicine at once in Oriskany Falls, N. Y., where he remained for a few years, when he came to this county and succeeded to the practice of his father-in-law, Dr. A. E. Varney, of Middleville.

Dr. Hamlin was made a member of the Herkimer County Medical Society in 1871, and was an active and prominent figure until his death. He has been chosen to all the principal offices within the gift of the Society, and officiated in committee work with unexcelled judgment and skill. As chairman for many years of the standing committee on hygiene, he was especially active, and his able reports were written most intelligently, and some of them were honored by incorporation in the records of the corresponding committee of the State Society.

He wrote many valuable papers, and was notable for the prominent part he always took in the discussion of general subjects, both medical and surgical, and constantly proved his thorough familiarity with the progress of every department of science. He served for four years as a delegate to the Medical Society of the State of New York, and was made a permanent member in 1890. His interest in the State Society's progress was manifested by the fact that he attended its meetings for fifteen years before he received his regular delegateship.

As a citizen, he was noted for his liberal public spirit, and served the public interest most faithfully and intelligently in various

positions of trust and responsibility. He was for many years physician to the County House and Insane Asylum. He was a member of the Pan-American Medical Congress, and was one of those who were designated to represent the State of New York in that body in Washington, D. C., in 1892. He was a member of the New York Physicians' Mutual Aid Association of New York City, and a member of the Protestant Episcopal Memorial Church of Middleville, a member of the Grand Army of the Republic, and a Freemason of high degree, having attained the title of the Ancient Scottish Rite.

He enjoyed the confidence and patronage of a wide and populous district, and was universally regarded as an all-around medical practitioner, both in attending and consulting work. He was an obstetrician of superior qualifications, an expert diagnostician, and had comprehensive and far-seeing judgment as to prognosis and treatment.

His information was broad, his understanding was clear, his perception acute. He was frank and sincere in his utterances, generous in his every impulse, modest in his bearing. He loved nature, of which he was a most consistent student. He was devoted to his work as a physician; in the monotonous grind of the daily duties of the medical practitioner, the details of which are oftentimes so painfully familiar to us all, he demonstrated on all occasions the great moral courage and devoted unselfishness of which he was so abundantly possessed. We take pardonable pride in offering the record of his worth and his self-sacrificing deeds for emulation. In his death we feel that we have lost a most valuable professional associate and a consistent, honorable, and amiable friend.

In propria persona our friend and fellow-member has disappeared from the sight of men. And while we bespeak for his ashes peace, there is left to us the precious memory of

" A life's duties well done,
A life's race well run,
A life's victory well won ;
Now cometh rest."

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

OFFICERS OF THE SOCIETY FROM ITS ORGANIZATION TO THE PRESENT TIME.

<i>Year.</i>	<i>President.</i>	<i>Vice-President.</i>	<i>Secretary.</i>	<i>Treasurer.</i>
1807	Wm. McClelland,	Alexander Shelden,	John Stearns,	Moses Willard.
1808	Nicholas Romayne,	Alexander Shelden,	John Stearns,	James G. Graham.
1809	Nicholas Romayne,	Alexander Shelden,	John Stearns,	Andrew Proudft.
1810	Nicholas Romayne,	Alexander Shelden,	John Stearns,	Andrew Proudft.
1811	William Wilson,	Westel Willoughby,	Benj. R. Bevier,	Asa B. Sizer.
1812	John R. B. Rodgers,	Westel Willoughby,	John Stearns,	Asa B. Sizer.
1813	John R. B. Rodgers,	Joseph White,	John Stearns,	James L. Van Kleeck.
1814	John R. B. Rodgers,	Joseph White,	Ely Burritt,	James L. Van Kleeck.
1815	Joseph White,	Ely Burritt,	James Low,	Westel Willoughby.
1816	Joseph White,	Ely Burritt,	James Low,	John Stearns.
1817	John Stearns,	Henry Mitchell,	James Low,	Chas. D. Townsend.
1818	John Stearns,	Henry Mitchell,	Peter Wendell,	Chas. D. Townsend.
1819	John Stearns,	Westel Willoughby,	Chas. D. Townsend,	John Downs.
1820	John Stearns,	Westel Willoughby,	Chas. D. Townsend,	John Downs.
1821	Samuel L. Mitchell,	Peter C. Adams,	Chas. D. Townsend,	John Downs.
1822	Samuel L. Mitchell,	Thomas Fuller,	Chas. D. Townsend,	T. Romeyn Beck.
1823	Alexander Coventry,	John H. Steele,	Chas. D. Townsend,	Jonathan Eight.
1824	Alexander Coventry,	John H. Steele,	Chas. D. Townsend,	Jonathan Eight.
1825	James R. Manley,	T. Romeyn Beck,	Platt Williams,	Jonathan Eight.
1826	James R. Manley,	T. Romeyn Beck,	Platt Williams,	Jonathan Eight.
1827	T. Romeyn Beck,	Laurens Hull,	Platt Williams,	Jonathan Eight.
1828	T. Romeyn Beck,	Laurens Hull,	Platt Williams,	Jonathan Eight.
1829	T. Romeyn Beck,	Henry Mitchell,	Joel A. Wing,	Jonathan Eight.
1830	Jonathan Eight,	Henry Mitchell,	Joel A. Wing,	Platt Williams.
1831	Jonathan Eight,	Thomas Spencer,	Joel A. Wing,	Platt Williams.
1832	Thomas Spencer,	James McNaughton,	Joel A. Wing,	Platt Williams.
1833	Thomas Spencer,	James McNaughton,	Joel A. Wing,	Platt Williams.
1834	John H. Steele,	James McNaughton,	Joel A. Wing,	Platt Williams.
1835	John H. Steele,	James McNaughton,	Joel A. Wing,	Platt Williams.
1836	James McNaughton,	Samuel White,	Joel A. Wing,	Platt Williams.
1837	James McNaughton,	Samuel White,	Peter Van O'Linda,	Platt Williams.
1838	Laurens Hull,	Sumner Ely,	Peter Van O'Linda,	Platt Williams.
1839	Laurens Hull,	Sumner Ely,	Peter Van O'Linda,	Platt Williams.
1840	Sumner Ely,	John B. Beck,	Peter Van O'Linda,	Platt Williams.
1841	John B. Beck,	William Taylor,	Peter Van O'Linda,	Platt Williams.
1842	William Taylor,	Joel A. Wing,	Peter Van O'Linda,	Platt Williams.
1843	Samuel White,	Joel A. Wing,	Peter Van O'Linda,	Platt Williams.
1844	Joel A. Wing,	Harman Van Dusen,	Peter Van O'Linda,	Platt Williams.
1845	James Webster,	Robert G. Frary,	Peter Van Buren,	Peter Van O'Linda.
1846	John McCall,	Stephen Hasbrouck,	Peter Van Buren,	Peter Van O'Linda.
1847	Thos. W. Blatchford,	Alex. Thompson,	Peter Van Buren,	Peter Van O'Linda.
1848	Alex. H. Stephens,	Alex. Thompson,	Peter Van Buren,	Peter Van O'Linda.
1849	Alex. H. Stephens,	Alex. Thompson,	Peter Van Buren,	Peter Van O'Linda.
1850	Alex. Thompson,	Jenks S. Sprague,	Thomas Hun,	Peter Van O'Linda.
1851	Robert G. Frary,	Jenks S. Sprague,	Thomas Hun,	Peter Van O'Linda.

<i>Year.</i>	<i>President.</i>	<i>Vice-President.</i>	<i>Secretary.</i>	<i>Treasurer.</i>
1852	Alonzo Clark,	Jenks S. Sprague,	Thomas Hun,	Peter Van O'Linda.
1853	Jenks S. Sprague,	Peter Van Buren,	James H. Armsby,	Peter Van O'Linda.
1854	Charles R. Coventry,	Peter Van Buren,	Howard Townsend,	Peter Van O'Linda.
1855	Frank H. Hamilton,	Thomas Hun,	Howard Townsend,	Peter Van O'Linda.
1856	Alden March,	Chas. S. Goodrich,	Howard Townsend,	J. V. P. Quackenbush.
1857	Augustus Willard,	Thos. C. Brinsmade,	Sylvcs. D. Willard,	J. V. P. Quackenbush.
1858	T. C. Brinsmade,	George W. Bradford,	Sylvcs. D. Willard,	J. V. P. Quackenbush.
1859	B. Fordyce Barker,	Daniel T. Jones,	Sylvcs. D. Willard,	J. V. P. Quackenbush.
1860	Daniel T. Jones,	Edward H. Parker,	Sylvcs. D. Willard,	J. V. P. Quackenbush.
1861	Edward H. Parker,	Andrew Van Dyck,	Sylvcs. D. Willard,	J. V. P. Quackenbush.
1862	Thomas Hun,	Daniel P. Bissell,	Sylvcs. D. Willard,	J. V. P. Quackenbush.
1863	Daniel P. Bissell,	Joel Foster,	Sylvcs. D. Willard,	J. V. P. Quackenbush.
1864	Frederick Hyde,	George J. Fisher,	Sylvcs. D. Willard,	J. V. P. Quackenbush.
1865	Henry W. Dean,	Jos. C. Hutchison,	William H. Bailey,	J. V. P. Quackenbush.
1866	Joseph C. Hutchison,	Julian T. Williams,	William H. Bailey,	J. V. P. Quackenbush.
1867	John P. Gray,	Lake I. Teft,	William H. Bailey,	J. V. P. Quackenbush.
1868	J. V. P. Quackenbush,	James P. White,	William H. Bailey,	John V. Lansing.
1869	James P. White,	George Burr,	William H. Bailey,	John V. Lansing.
1870	S. O. Vander Poel,	Gilson A. Dayton,	William H. Bailey,	John V. Lansing.
1871	William C. Wey,	Andrew F. Doolittle,	William H. Bailey,	Charles H. Porter.
1872	Cornelius R. Agnew,	B. F. Sherman,	William H. Bailey,	Charles H. Porter.
1873	Edward M. Moore,	Francis Burdick,	William H. Bailey,	Charles H. Porter.
1874	George J. Fisher,	Harvey Jewett,	William H. Bailey,	Charles H. Porter.
1875	Thos. F. Rochester,	Ellsworth Elliot,	Edward R. Hun,	Charles H. Porter.
1876	E. R. Squibb,	J. V. Kendall,	Edward R. Hun,	Charles H. Porter.
1877	J. Foster Jenkins,	A. L. Saunders,	W. Manlius Smith,	Charles H. Porter.
1878	D. B. St. John Roosa,	Judson C. Nelson,	W. Manlius Smith,	Charles H. Porter.
1879	Henry D. Didama,	Nath. C. Husted,	W. Manlius Smith,	Charles H. Porter.
1880	William H. Bailey,	Abraham Jacobi,	W. Manlius Smith,	Charles H. Porter.
1881	Abraham Jacobi,	William Govan,	W. Manlius Smith,	Charles H. Porter.
1882	Harvey Jewett,	E. D. Ferguson,	W. Manlius Smith,	Charles H. Porter.
1883	Alexander Hutchins,	H. G. P. Spencer,	W. Manlius Smith,	Charles H. Porter.
1884	B. F. Sherman,	P. R. H. Sawyer,	W. Manlius Smith,	Charles H. Porter.
1885	A. Vander Veer,	Alfred C. Post,	W. Manlius Smith,	Charles H. Porter.
1886	William S. Ely,	Sol. Van Etten,	W. Manlius Smith,	Charles H. Porter.
1887	Alfred L. Loomis,	A. M. Phelps,	W. Manlius Smith,	Charles H. Porter.
1888	Samuel B. Ward,	A. Walter Suiter,	W. Manlius Smith,	Charles H. Porter.
1889	Daniel Lewis,	Alfred Mercer,	Frederic C. Curtis,	Charles H. Porter.
1890	W. W. Potter,	L. S. Pilcher,	Frederic C. Curtis,	Charles H. Porter.
1891	A. Walter Suiter,	W. W. Crandall,	Frederic C. Curtis,	Charles H. Porter.
1892	Lewis S. Pilcher,	Henry L. Elaner,	Frederic C. Curtis,	Charles H. Porter.
1893	Herman Bendell,	C. L. Stiles,	Frederic C. Curtis,	Charles H. Porter.
1894	George Henry Fox,	Frank S. Low,	Frederic C. Curtis,	Charles H. Porter.
1895	Roswell Park,	William Maddren,	Frederic C. Curtis,	Charles H. Porter.
1896	James D. Spencer,	L. Duncan Bulkley,	Frederic C. Curtis,	Charles H. Porter.
1897	Beneca D. Powell,	Lucien Howe,	Frederic C. Curtis,	Charles H. Porter.
1898	John O. Roe,	E. F. Brush,	Frederic C. Curtis,	Charles H. Porter.

OFFICERS, 1898.

PRESIDENT,
JOHN O. ROE, Rochester.

VICE-PRESIDENT,
E. F. BRUSH, Mount Vernon.

SECRETARY,
FREDERIC C. CURTIS, Albany.

TREASURER,
CHARLES H. PORTER, Albany.

MEMBERS.

I. DELEGATES FROM COUNTY MEDICAL SOCIETIES, ETC.

(By-laws, Chap. I., Sec. 2.)

Figures in parenthesis indicate year in which term begins, the annual meeting of that year being the first of the term.

<i>Albany County</i> (1900): J. F. Barker, Albany. C. E. Davis, " A. MacFarlane, " A. G. Root, " <i>Allegany County</i> (1901): H. F. Gillett, Cuba. <i>Broome County</i> (1898): B. E. Radeker, Deposit. C. G. Wagner, Binghamton. <i>Cattaraugus County</i> (1900): W. B. Johnson, Ellicottville. Edward Torrey, Allegany. <i>Cayuga County</i> (1900): M. P. Conway, Auburn. E. S. Foreman, " <i>Chautauqua County</i> (1901): C. A. Ellis, Sherman. E. S. Rich, Kennedy. <i>Chemung County</i> (1900): W. E. Colegrove, Horseheads. <i>Chenango County</i> (1901): Louis P. Blair, McDonough. <i>Clinton County</i> (1898): J. G. McKinney, Plattsburgh. <i>Columbia County</i> (1901): James W. King, Stottsville. <i>Cortland County</i> (1901): Francis W. Higgins, Cortland. <i>Delaware County</i> (1901): H. A. Gates, Delhi.	<i>Dutchess County</i> (1901): H. E. Allison, Fishkill. J. E. Sadlier, Poughkeepsie. <i>Erie County</i> (1901): Thomas B. Carpenter, Buffalo. Earl P. Lathrop, " Arthur W. Hurd, " Eugene A. Smith, " J. G. Thompson, Angola. P. W. Van Peyma, Buffalo. G. W. Wende, " Herbert U. Williams, " <i>Essex County</i> (1900): F. S. Hallett, Elizabethtown. <i>Franklin County</i> (1901): P. F. Dolphin, Malone. <i>Fulton County</i> (1900): David V. Still, Johnstown. <i>Genesee County</i> (1899): — <i>Greene County</i> (1900): E. H. Merriam, Coxsackie. <i>Herkimer County</i> (1901): Charles H. Gliden, Little Falls. <i>Jefferson County</i> (1900): O. C. Eastman, Watertown. G. H. Wood, Antwerp. <i>Kings County</i> (1901): H. A. Alderton, Brooklyn. William C. Braislín, " Arthur C. Brush, "
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- Albert C. Bunn, Brooklyn.
 Wm. Francis Campbell, "
 J. M. Clayland, "
 H. P. de Forest, "
 Z. T. Dunning, "
 Gordon R. Hall, "
 Henry T. Hotchkiss, "
 Sylvester J. McNamara, "
 H. R. Price, "
 John Rankin, "
 Victor Robertson, "
 William Schroeder, "
 Peter Scott, "
 Frederic J. Shoop, "
 William Simmons, "
 James P. Warbasse, "
 William Waterworth, "
 Herbert F. Williams, "
Lewis County (1900):
 C. P. Kirley, Lowville.
Livingston County (1899):
 L. P. Clarke, Sonyea.
Madison County (1898):
 J. W. Knapp, Canastota.
Monroe County (1900):
 S. W. Little, Rochester.
 F. A. Mandeville, "
 Charles D. Young, "
 D. G. Mason, East Henrietta.
Montgomery County (1899):
 C. W. De Baun, Fonda.
New York County (1899):
 Louis F. Bishop, New York.
 Joshua L. Barton, "
 T. Passmore Berens, "
 Dillon Brown, "
 B. Farquhar Curtis, "
 E. N. Carpenter, "
 Walter Lester Carr, "
 James K. Crook, "
 Herman L. Collyer, "
 Henry S. Drayton, "
 Thomas Darlington, "
 Mathias L. Foster, "
 Henry Hall Forbes, "
 Egbert H. Grandin, "
 Henry J. Garrigues, "
 Charles L. Gibson, "
 A. H. Goellet, "
 Wm. H. Haskin, "
 Dwight W. Hunter, "
 George W. Jarman, "
 Henrietta P. Johnson, "
 Emil Mayer, "
 Grace Peckham Murray, "
 Robert Milbank, "
 Simon Marx, "
 Robert A. Murray, "
 Frederick Petersen, "
 David P. Pease, New York.
 Wm. B. Pritchard, "
 A. D. Rockwell, "
 Wm. L. Stowell, "
 Frank Van Fleet, "
 R. Van Santvoord, "
 John Elmer Weeks, "
 Waldron B. Vanderpoel, "
Niagara County (1900):
 T. B. Cosford, Lockport.
 F. A. Kittinger,
Oneida County (1899)
 S. C. Maxson, Utica.
 F. H. Peck, "
 C. E. Smith, Whitesboro.
Onondaga County (1900):
 O. G. Dibble, Pompey.
 R. L. McLennan, Syracuse.
 F. H. Stephenson, "
 E. J. Wynkoop, "
Ontario County (1901):
 B. C. Loveland, Clifton Springs.
Orange County (1900):
 W. S. Gleason, Newburgh.
 D. B. Hardenburgh, Port Jervis.
Orleans County (1899):
 John H. Taylor, Holly.
Onevo County (1899):
 C. G. Bacon, Fulton.
 J. W. Huntington, Mexico.
Otsego County (1900):
 John H. Moon, Cooperstown.
Putnam County (1900):
 J. E. Reed, Carmel.
Queens County (1900):
 C. G. J. Finn, Hempstead.
 Samuel Hendrickson, Jamaica.
 E. D. Skinner, Mineola.
Rensselaer County (1900):
 G. A. Bradbury, Lansingburgh.
 Archibald Buchanan, Troy.
 M. D. Dickinson, "
Richmond County (1900):
 H. C. Johnston, New Brighton.
Rockland County (1901):
 ————
St. Lawrence County (1901):
 J. H. Brownlow, Ogdensburgh.
 William Mabon, "
Saratoga County (1901):
 ————
Schenectady County (1900):
 C. C. Duryea, Schenectady.
Schoharie County (1900):
 A. L. Haines, Schoharie.
Schuyler County (1899):
 S. B. Allen, Burdette.
Seneca County (1899):
 F. M. Severson, Seneca Falls.

- Steuben County* (1900):
M. B. Hubbs, Addison.
B. R. Wakeman, Hornellsville.
- Suffolk County* (1901):
Samuel Blume, Riverhead.
- Sullivan County* (1900):
- Tioga County* (1900):
George M. Cady, Nichols.
- Tompkins County* (1900):
Edward Meany, Ithaca.
- Ulster County* (1901):
C. D. La Montayne, Port Ewen.
A. S. Vrooman, High Falls.
- Warren County* (1900):
R. J. Eddy, Glens Falls.
- Washington County* (1901):
J. Millington, East Greenwich.
- Wayne County* (1901):
M. A. Veeder, Lyons.
- Westchester County* (1900):
M. W. Barnum, Sing Sing.
H. F. Hart, Shrub Oak.
Evarts M. Morrell, New York.
- Wyoming County* (1899):
- Yates County* (1899):
C. M. Van Dyke, Himrods.
- New York Academy of Medicine* (1900):
Wm. S. Gottheil, New York.
Joseph Collins, "
Reginald H. Sayre, "
Ralph L. Parsons, "
C. H. Richardson, "
Medical Department New York City University (1901):
Wm. M. Polk, New York.
- Bellevue Hospital Medical College* (1899):
- College of Physicians and Surgeons, New York* (1899):
- New York Post-Graduate Medical School* (1899):
Ramon Guiteras, New York.
- New York Polyclinic* (1900):
J. Riddle Goffe, New York.
- Long Island College Hospital* (1899):
J. H. Raymond, Brooklyn.
- Medical Department, Union University* (1900):
H. Van Rensselaer, Albany.
- Medical Department, University of Buffalo* (1899):
Matthew D. Mann, Buffalo.
- College of Medicine, Syracuse University* (1899):
A Clifford Mercer, Syracuse.
- Rochester Pathological Society* (1899):
W. B. Jones, Rochester.
- Medical Association of Northern New York* (1898):
E. S. McClellan, Saranac Lake.
- Utica Medical Club* (1899):
M. J. Davies, Utica.
- Utica Medical Library Association* (1901):
G. Alder Blumer, Utica.
- Elmira Academy of Medicine* (1900):
T. A. Dundas, Elmira.
- Society of Physicians of Canandaigua* (1899):
John H. Jewett, Canandaigua.
- Practitioners' Society of Rochester* (1899):
Evylin Baldwin, Rochester.
- Syracuse Academy of Medicine* (1900):
A. B. Breese, Syracuse.
- Amsterdam Medical Society* (1901):
E. F. Bronk, Amsterdam.
- Long Island Medical Society* (1901):
Wm. Austin Tones, Brooklyn.
- Medical Association City of Mt. Vernon and Environs* (1901):
George A. Peck, Mt. Vernon.

II. PERMANENT MEMBERS.

For regulations with regard to permanent members, their election, initiation fees, annual dues, etc., see page 2 of *Transactions*. Permanent members who neglect to pay their dues for three years are dropped from the following list till arrearages are paid. (By-laws, Chapter VII.)

Permanent members, of the age of sixty or upward, who have been permanent members for ten years, on making application to the Secretary, the application being accompanied with the Treasurer's certificate that all dues have been paid up to date, are placed on the list of *Retired Permanent Members*, and are relieved from further payment of annual dues. Names on this list in *italics* are retired members.

Year of Election.		County.
1880	H. R. Ainsworth	Steuben
1887	C. S. Allen,	Rensselaer
1885	Eli Allison,	Wayne, Steuben
1892	Edward B. Angell,	Rochester, Monroe
1888	Moses T. Babcock,	Hammondsport, Steuben
1888	Gorham Bacon,	New York, New York
1858	<i>Charles G. Bacon (1884)</i>	Fulton, Oswego
1857	<i>M. M. Bagg (1883),</i>	Utica, Oneida.
1891	F. D. Bailey,	Brooklyn, Kings
1864	William H. Bailey,	Albany, Albany
1897	Eugene Baker,	Ithaca, Tompkins
1891	Lewis Balch,	Albany, Albany
1897	Frank Baldwin,	Brooklyn, Kings
1898	O. D. Ball,	Albany, Albany
1895	Eveline P. Ballantine,	Rochester, Monroe
1889	L. Bolton Bangs,	New York, New York
1896	Silas J. Banker,	Fort Edward, Washington
1898	H. A. Barney,	Belmont, Allegany
1896	David A. Barnum,	Cassville, Oneida
1867	<i>Lyman Barton (1883),</i>	Willsborough, Essex
1884	Milford L. Bates,	Canaan 4 Corners, Columbia
1896	Guy Carlton Bayley,	Poughkeepsie, Dutchess
1876	Eugene Beach,	Gloversville, Fulton
1895	Albert L. Beahan,	Canandaigua, Ontario
1895	Frank Beebe,	Johnstown, Fulton
1866	<i>A. N. Bell (1881),</i>	Brooklyn, Kings
1887	Herman Bendell,	Albany, Albany
1885	John M. Bigelow,	Albany, Albany
1897	Chauncey P. Biggs,	Ithaca, Tompkins
1898	Gilbert Birdsall,	North Brookfield, Madison
1896	Joseph B. Bissell,	New York, New York
1862	<i>John Boardman (1892),</i>	Buffalo, Erie
1896	Herman J. Boldt,	New York, New York
1861	Reed B. Bontecou,	Troy, Rensselaer
1896	R. Brinsmade Bontecou,	Troy, Rensselaer
1888	C. W. Bourne,	Hamburg, Erie
1888	James P. Boyd,	Albany, Albany
1897	Charles M. Brasted,	Hornellsville, Steuben
1898	Arthur B. Breese,	Syracuse, Onondaga
1874	Elisha H. Bridges,	Ogdensburg, St. Lawrence
1894	C. W. M. Brown,	Elmira, Chemung
1894	U. H. Brown,	Syracuse, Onondaga
1893	A. J. Brown,	Utica, Oneida
1895	William Browning,	Brooklyn, Kings
1898	A. T. Bristow,	Brooklyn, Kings
1890	Charles E. Bruce,	New York, New York
1888	Edward F. Brush,	Mt. Vernon, Westchester
1898	George W. Brush,	Brooklyn, Kings
1897	Joseph D. Bryant,	New York, New York
1868	<i>Israel I. Buckbee (1882),</i>	Fonda, Montgomery
1895	A. H. Buckmaster,	New York, New York
1887	L. Duncan Bulkley,	New York, New York
1884	John E. Burdick,	Johnstown, Fulton
1897	William A. Burgess,	Utica, Oneida
1894	Daniel S. Burr,	Binghamton, Broome
1876	<i>J. J. Hobart Burge (1894),</i>	Brooklyn, Kings
1894	T. O. Burleson,	Bath, Steuben
1889	Stephen Smith Burt,	New York, New York

Year of Election.		County.
1898	William E. Butler,	Brooklyn,
1894	Glenworth R. Butler,	Brooklyn,
1892	Peter A. Callan,	New York,
1885	<i>A. M. Campbell</i> (1894),	Mt. Vernon,
1897	Elon N. Carpenter,	New York,
1884	<i>H. W. Carpenter</i> (1895),	Oneida,
1884	<i>S. S. Cartwright</i> (1894),	Roxbury,
1890	Charles Cary,	Buffalo,
1866	<i>J. E. Casey</i> (1890),	Mohawk,
1896	Walter Franklin Chappell,	New York,
1879	Walter B. Chase,	Brooklyn,
1895	William S. Cheesman,	Auburn,
1886	Charles H. Chubb,	Palenville,
1889	John H. Cipperly,	Troy,
1895	F. L. Classen,	Albany,
1895	William T. Clute,	Schenectady,
1894	Henry C. Coe,	New York,
1896	Lewis A. Coffin,	New York,
1895	Carter S. Cole,	New York,
1891	Philander Collard,	Sing Sing,
1867	<i>Darwin Colvin</i> (1884),	Clyde,
1890	William J. Conklin,	Fishkill,
1888	D. H. Cook,	Albany,
1896	James S. Cooley,	Glen Cove,
1888	J. Leonard Corning,	New York,
1891	Charles N. Cox,	Brooklyn,
1897	Joseph D. Craig,	Albany,
1890	Herman Craft,	Stone Ridge,
1890	Floyd S. Crego,	Buffalo,
1882	Joseph P. Creveling,	Auburn,
1891	Charles W. Crispell,	Rondout,
1898	Montgomery A. Crockett,	Buffalo,
1891	Alexander H. Crosby,	Lowville,
1890	Lemuel Cross,	Schoharie,
1895	William L. Cuddeback,	Port Jervis,
1890	C. M. Culver,	Albany,
1882	F. C. Curtis,	Albany,
1896	Newton F. Curtis,	White Plains,
1885	John G. Curtis,	New York,
1896	Alexander Dallas,	New York,
1891	Charles L. Dana,	New York,
1896	Henry T. Dana,	Cortland,
1896	S. L. Dawes,	Saugerties,
1891	Henry H. Deane,	Watertown,
1889	Francis Delafield,	New York,
1893	W. B. DeGarmo,	New York,
1894	H. B. Delatour,	Brooklyn,
1888	Charles A. Dewey,	Rochester,
1898	Charles E. Doubleday,	Penn Yan,
1892	Charles E. Douglass,	Lowville,
1890	O. B. Douglas,	New York,
1894	William E. Douglas,	Middletown,
1878	H. G. Dubois,	Camden,
1897	A. Palmer Dudley,	New York,
1896	Theodore Dunham,	New York,
1896	Henry Strong Durand,	Rochester,
1898	Jesse T. Duryea,	Brooklyn,
1896	Daniel C. Dye,	Utica,
		Kings
		Kings
		New York
		Westchester
		New York
		Madison
		Delaware
		Erie
		Herkimer
		New York
		Kings
		Cayuga
		Greene
		Rensselaer
		Albany
		Schenectady
		New York
		New York
		New York
		Westchester
		Wayne
		Dutchess
		Albany
		Queens
		New York
		Kings
		Albany
		Ulster
		Erie
		Cayuga
		Ulster
		Erie
		Lewis
		Schoharie
		Orange
		Albany
		Albany
		Westchester
		New York
		New York
		New York
		Cortland
		Ulster
		Jefferson
		New York
		New York
		Kings
		Monroe
		Yates
		Lewis
		New York
		Orange
		Oneida
		New York
		New York
		Monroe
		Kings
		Oneida

Year of Election.		County.
1886	Joseph W. Eddy,	Oswego
1895	George M. Edebohl,	New York
1893	John Edwards,	Fulton
1870	<i>Ellsworth Elliot</i> (1887),	New York
1896	Elmore E. Elliott,	Catskill
1892	Henry L. Elsner,	Syracuse
1875	William S. Ely,	Rochester
1892	Z. Taylor Emory,	Brooklyn
1871	Thomas Addis Emmet,	New York
1898	Edwin Evans,	Rome
1891	George A. Evans,	Brooklyn
1898	Henry A. Fairbairn,	Brooklyn
1889	James D. Featherstonhaugh,	Cohoes
1892	Mahlon Felter,	Troy
1890	E. D. Fisher,	New York
1896	Arthur Lyman Fisk,	New York
1888	Henry Flood,	Elmira
1883	Willis E. Ford,	Utica
1896	John Addison Fordyce,	New York
1889	George R. Fowler,	Brooklyn
1882	George Henry Fox,	New York
1880	N. H. Freeland,	Tarrytown
1862	<i>Samuel H. Freeman</i> (1886),	Albany
1891	Crawford E. Fritts,	Hudson
1897	Henry P. Frost,	Buffalo
1893	E. D. Fuller,	Utica
1880	P. R. Furbeck,	Gloversville
1897	W. D. Garlock,	Little Falls
1885	John Gerin,	Auburn
1887	Arpad G. Gerster,	New York
1884	V. P. Gibney,	New York
1893	W. M. Gibson,	Utica
1889	J. H. Glass,	Utica
1891	D. A. Gleason,	Oxford
1883	<i>I. N. Goff</i> (1896),	Cazenovia
1892	D. H. Goodwillie,	New York
1896	Herman C. Gordinier,	Troy
1895	Wilmer I. Gordon,	—
1897	Egbert H. Grandin,	New York
1894	George Graves,	Herkimer
1881	Henry Gray,	Greenwich
1895	Landon Carter Gray,	New York
1888	Alexander Hadden,	New York
1887	William Hailes,	Albany
1897	Lorenzo Hale,	Albany
1897	Orlando J. Hallenbeck,	Canandaigua
1898	Thomas H. Halsted,	Syracuse
1889	H. T. Hanks,	New York
1895	Josiah Hasbrouck,	Port Ewen
1894	Herman E. Hayd,	Buffalo
1880	C. R. Heaton,	Owego
1889	John L. Heffron,	Syracuse
1898	Alfred W. Henckell,	Rochester
1890	Neil J. Hepburn,	New York
1889	E. M. Hermance,	Yonkers
1892	C. B. Herrick,	Troy
1894	Wallace J. Herriman,	Rochester
1885	H. R. Hopkins,	Buffalo
		Erie

Year of Election.		County.
1898	D. W. Houston,	Rensselaer
1874	<i>B. L. Hovey</i> (1885),	Monroe
1891	Eugene H. Howard,	Monroe
1892	W. R. Howard,	Monroe
1886	Lucien Howe,	Erie
1891	John T. Howell,	Orange
1896	Joseph B. Hulett,	Orange
1893	Henry Hun,	Albany
1892	Joseph H. Hunt,	Kings
1897	George Huntington,	Dutchess
1894	Joel W. Hyde,	Kings
1893	George T. Jackson,	New York
1875	Abraham Jacobi,	New York
1892	Nathan Jacobson,	Onondaga
1886	Charles Jewett,	Kings
1897	Frederick A. Jewett,	Kings
1882	Wm. H. Johnson,	Lewis
1856	James V. Kendall,	Onondaga
1896	Judson G. Kilbourn,	Oneida
1891	Osman F. Kinloch,	Rensselaer
1880	Herman Knapp,	New York
1857	<i>Jonathan Kneeland</i> (1881),	Onondaga
1898	William C. Krauss,	Erie
1895	Austin La Monte,	Putnam
1898	Wilbur F. Lamont,	Greene
1896	Louis Nott Lanehart,	Queens
1890	C. M. Lefler,	Fulton
1893	W. H. Leonard,	Otsego
1890	Maurice J. Lewi,	New York
1884	Daniel Lewis,	New York
1892	Samuel Lloyd,	New York
1885	J. D. Lomax,	Rensselaer
1892	Eli H. Long,	Erie
1882	E. H. Loughran,	Ulster
1871	R. Loughran,	Ulster
1871	Frank S. Low,	Oswego
1898	David F. Lucas,	Kings
1891	Carlos F. MacDonald,	New York
1895	Willis G. MacDonald,	Albany
1896	John C. MacEvitt,	Kings
1894	Frank Madden,	Clinton
1890	William Maddren,	Kings
1893	A. H. Mambert,	Ulster
1895	John Mann,	Queens
1897	Matthew D. Mann,	Erie
1891	Frank W. Marlow,	Onondaga
1896	Charles Mason,	Westchester
1889	A. Ross Matheson,	Kings
1879	Arthur Mathewson,	Kings
1892	Charles P. McCabe,	Greene
1894	George M. McCombs,	Broome
1894	J. A. McCorkle,	Kings
1898	Henry C. McLean,	Kings
1895	George McNaughton,	Kings
1884	Alfred Mercer,	Onondaga
1898	A. Clifford Mercer,	Onondaga
1897	H. E. Mereness,	Albany
1888	C. S. Merrill,	Albany

Year of Election.		County.
1897	G. V. R. Merrill,	Chemung
1892	Willy Meyer,	New York
1895	Aaron B. Miller,	Onondaga
1888	Lewis H. Miller,	Kings
1892	Theodore D. Mills,	Orange
1886	W. F. Mittendorf,	New York
1896	Edward L. Mooney,	Onondaga
1896	William A. Moore,	Broome
1896	John Moroney,	Oswego
1896	John W. Morris,	Troy,
1892	Robert T. Morris,	New York
1898	Robert J. Morrison,	Brooklyn,
1895	Samuel R. Morrow,	Albany
1896	William James Morton,	New York
1896	J. Montgomery Mosher,	Albany
1894	E. W. Mulligan,	Rochester,
1896	T. Halsted Myers,	New York
1898	Herman V. Mynderse,	Schenectady,
1892	Herman Mynter,	Buffalo,
1898	Charles D. Napier,	Brooklyn,
1898	W. J. Nellis,	Albany,
1892	Albert S. Newcomb,	New York,
1895	James E. H. Nichols,	New York,
1895	William P. Northrup,	New York,
1870	Henry D. Noyes,	New York,
1890	George H. Oliver,	Dickinson Centre,
1891	Darius S. Orton,	Northampton,
1890	May R. Owen,	Brooklyn,
1892	R. C. M. Page,	New York,
1893	Albert H. Palmer,	Marlborough,
1891	Henry C. Palmer,	Utica,
1892	Roswell Park,	Buffalo,
1897	Frederick H. Parker,	Auburn,
1895	Clair S. Parkhill,	Hornellsville,
1863	<i>W. H. H. Parkhurst</i> (1883),	Frankfort,
1873	<i>John Parr</i> (1886),	Buel,
1887	Edward L. Partridge,	New York,
1893	O. W. Peck,	Oneonta,
1881	<i>S. H. Peck</i> (1892),	Ithaca,
1893	T. K. Perry,	Albany,
1891	Wendell C. Phillips,	New York,
1890	Henry T. Pierce,	New York,
1889	F. M. Perrine,	Danville,
1883	A. M. Phelps,	New York,
1880	Henry G. Piffard,	New York,
1891	Lewis S. Pilcher,	Brooklyn,
1894	Milton G. Planck,	Schenectady,
1896	Warren O. Plimpton,	New York,
1897	John Osborne Polak,	Brooklyn,
1880	J. O. Polhemus,	Nyack,
1893	G. P. K. Pomeroy,	Stuyvesant,
1881	Thomas R. Pooley,	New York,
1869	Charles H. Porter,	Albany,
1897	Marion Craig Potter,	Rochester,
1883	W. W. Potter,	Buffalo,
1893	J. W. Poucher,	Poughkeepsie,
1892	Seneca D. Powell,	New York,
1891	H. D. V. Pratt, Jr.,	Elmira,

Year of Election.		County.
1879	<i>Jonathan S. Prout</i> (1897)	Brooklyn, Kings
1897	John H. Pryor,	Buffalo, Erie
1877	A. E. M. Purdy,	New York, New York
1894	Hamilton S. Quin,	Utica, Oneida
1896	Julius B. Ransom,	Dannemora, Clinton
1894	C. M. Rexford,	Watertown, Jefferson
1889	Clarence C. Rice,	New York, New York
1896	DeWitt C. Rodenhurst,	Philadelphia, Jefferson
1882	J. O. Roe,	Rochester, Monroe
1878	D. B. St. John Roosa,	New York, New York
1898	Lewis W. Rose,	Rochester, Monroe
1898	George W. Rossman,	Ancram, Columbia
1891	Thomas E. Satterthwaite,	New York, New York
1886	Lewis A. Sayre,	New York, New York
1897	F. W. Sears,	Syracuse, Onondaga
1885	George Seymour,	Utica, Oneida
1893	W. W. Seymour,	Troy, Rensselaer
1897	Friend W. Shaffer,	Gloversville, Fulton
1898	John E. Sheppard,	Brooklyn, Kings
1884	Samuel Sherwell,	Brooklyn, Kings
1870	George F. Shrady,	New York, New York
1888	A. R. Simmons,	Utica, Oneida
1898	William H. Skene,	Brooklyn, Kings
1897	Frederick W. Slocum,	Camillus, Onondaga
1893	H. Lyle Smith,	Hudson, Columbia
1895	Judson C. Smith,	New York, New York
1867	<i>Wm. Manlius Smith</i> (1889),	Syracuse, Onondaga
1873	<i>H. G. P. Spencer</i> (1891),	Watertown, Jefferson
1886	James D. Spencer,	Watertown, Jefferson
1884	C. S. Starr,	Rochester, Monroe
1890	B. U. Steenberg,	Albany, Albany
1892	William Stevens,	New York, New York
1879	C. L. Stiles,	Owego, Tioga
1897	William O. Stillman,	Albany, Albany
1880	E. V. Stoddard,	Rochester, Monroe
1889	Charles Stover,	Amsterdam, Montgomery
1888	W. H. Stuart,	Norwich, Chenango
1882	Frederic R. Sturgis,	New York, New York
1885	A. Walter Suiter,	Herkimer, Herkimer
1892	Peter L. Suits,	Tribe's Hill, Montgomery
1896	Leander Swartwout,	Prospect, Oneida
1893	Robert E. Talbot,	New York, New York
1898	John Warren Thorp,	Oxford, Onondaga
1888	D. M. Totman,	Syracuse, Chenango
1896	T. Oliver Tait,	Rochester, Monroe
1897	C. F. Timmerman,	Amsterdam, Montgomery
1897	C. Wilnot Townsend,	New Brighton, Richmond
1896	Wisaner R. Townsend,	New York, New York
1889	Willis G. Tucker,	Albany, Albany
1880	R. K. Tuthill,	Poughkeepsie, Dutchess
1892	Francis Valk,	New York, New York
1895	T. F. C. Van Allen,	Albany, Albany
1895	Joshua M. Van Cott,	Brooklyn, Kings
1889	S. O. Vander Poel,	New York, New York
1876	Albert Vander Veer,	Albany, Albany
1886	Eugene Van Slyke,	Albany, Albany
1892	J. S. Van Vechten,	Chateaugay, Franklin
1895	Adam T. Van Vranken,	Watervliet, Albany

Year of Election.		County.
1898	M. A. Veeder,	Lyons, Wayne
1890	W. A. Vincent,	Three-Mile Bay, Jefferson
1896	C. A. Von Ramdohr,	New York, New York
1892	Ralph Waldo,	New York, New York
1886	Theodore C. Wallace,	Cambridge, Washington
1895	John J. Walsh,	Buffalo, Erie
1896	David B. Ward,	Poughkeepsie, Dutchess
1873	R. H. Ward,	Troy, Rensselaer
1883	Samuel B. Ward,	Albany, Albany
1885	<i>John S. Warren (1898),</i>	New York, New York
1883	David Webster,	New York, New York
1895	Ernest Wende,	Buffalo, Erie
1891	Frank E. West,	Brooklyn, Kings
1896	George T. Wetmore,	New York, New York
1894	Hamilton D. Wey,	Elmira, Chemung
1889	John T. Wheeler,	Chatham, Columbia
1883	J. W. Whitbeck,	Rochester, Monroe
1895	George H. Whitcomb,	Greenwich, Washington
1887	Jarvis S. Wight,	Brooklyn, Kings
1895	Reynold W. Wilcox,	New York, New York
1898	Alfred G. Wilding,	Malone, Franklin
1892	Robert J. Wilding,	Malone, Franklin
1883	C. E. Willard,	Catskill, Greene
1898	Edward S. Willard,	Watertown, Jefferson
1895	George O. Williams,	Greene, Chenango
1893	H. T. Williams,	Rochester, Monroe
1898	Ezra H. Wilson,	Brooklyn, Kings
1895	James McF. Winfield,	Brooklyn, Kings
1889	Gustavus S. Winston,	New York, New York
1881	C. E. Witbeck,	Cohoes, Albany
1892	G. H. Witter,	Wellsville, Allegany
1889	R. A. Witthaus,	New York, New York
1895	J. Walter Wood,	Port Richmond, Richmond
1887	W. Gill Wylie,	New York, New York
1895	Frederick W. Zimmer,	Rochester, Monroe

III. HONORARY MEMBERS.

Year of Election.		Year of Election.	
1889	Francis Bacon, New Haven, Connecticut	1866	N. S. Davis, Chicago, Ill.
1888	B. F. Baer, Philadelphia, Pa.	1892	W. E. B. Davis, Birmingham, Ala.
1882	R. Bartholow, Philadelphia, Pa.	1875	F. Dichiaro, Palermo, Italy
1880	J. S. Billings, Philadelphia, Pa.	1890	G. J. Engelmann, St. Louis, Mo.
1880	J. B. Brown, U. S. Army,	1875	E. H. Gregory, St. Louis, Mo.
1877	W. A. F. Brown, Dumfries, Scotland	1887	A. P. Grinnell, Burlington, Vt.
1886	E. N. Brush, Baltimore, Md.	1886	T. Hansen, Copenhagen, Denmark
1884	W. G. Brownson, New Canaan, Connecticut	1889	Reginald Harrison, Liverpool, England
1881	J. C. Bucknill, London, Eng.	1879	C. Heath, London, England
1877	S. C. Busey, Washington, D. C.	1894	O. E. Herrick, Grand Rapids, Michigan
1865	H. A. Buttolph, Short Hills, New Jersey	1882	C. N. Hewitt, Red Wing, Minn.
1894	Arthur T. Cabot, Boston, Mass.	1891	W. H. Hingston, Montreal, Canada
1885	T. S. Clouston, Edinburgh, Scotland	1877	W. S. Hopkins, Vergennes, Vt.
1875	J. M. DaCosta, Philadelphia, Pa.		

Year of Election.	Year of Election.
1854 O. P. Hubbard, Hanover, New Hampshire	1852 Samuel S. Purple, New York
1857 H. J. Hunter, Sheffield, England	1892 Chas. A. L. Reed, Cincinnati, Ohio
1891 J. Nevins Hyde, Chicago, Ill.	1882 Sidney Ringer, London, Eng.
1870 Ralph Isham, Chicago, Ill.	1883 C. L. Robertson, London, Eng.
1863 T. Jennings, Nashville, Tenn.	1895 Geo. H. Rohé, Catonsville, Md.
1887 E. Landolt, Paris, France	1892 Jas. F. W. Ross, Toronto, Can.
1870 H. M. Knight, Lakeville, Conn.	1889 Max Schede, Hamburg, Germany
1873 H. C. Lombard, Geneva, Switzerland	1888 F. J. Shepherd, Montreal, Can.
1871 W. McCollum, Brooklyn, N. Y.	1894 George M. Sternberg, Washington, D. C.
1897 J. Lee McComas, Oakland, Md.	1860 Alfred Stillé, Philadelphia, Pa.
1892 Lewis S. McMurtry, Louisville, Kentucky	1873 R. Stokes, Dublin, Ireland
1872 R. McNamara, Dublin, Ireland	1894 I. S. Stone, Washington, D. C.
1889 Howard Marsh, London, Eng.	1886 L. Tait, Birmingham, England
1898 Joseph M. Mathews, Louisville, Ky.	1881 W. H. Taylor, Cincinnati, O.
1879 L. A. Mercier, Paris, France	1873 T. J. Turner, U. S. Navy
1877 S. Weir Mitchell, Philadelphia, Pa.	1872 R. Virchow, Berlin, Germany
1891 E. E. Montgomery, Philadelphia, Pa.	1877 L. de Wecker, Paris, France
1894 J. H. Packard, Philadelphia, Pa.	1885, J. T. Whittaker, Cincinnati, O.
1889 William Pepper, Philadelphia, Pa.	1888 D. M. Wilcox, Farmington, Utah
1891 Joseph Price, Philadelphia, Pa.	1891 H. C. Wood, Philadelphia, Pa.
	1862 A. Woodward, Franklin, Connecticut
	1871 W. Worthington, West Chester, Pa.
	1892 A. H. Wright, Toronto, Can.

PERSONS ELIGIBLE TO MEMBERSHIP.

I. ELIGIBLE TO PERMANENT MEMBERSHIP.

Eligibility to permanent membership is secured by service as a delegate for three years and attendance and registry as such at two annual meetings of this Society. Only members of the county medical societies can become permanent members. Those eligible to permanent membership who desire to become members should make written application to the Secretary. (By-laws, Chap. I., Sec. 4, and Chap. VI., Sec. 3.)

Became eligible in 1898: B. E. Radeker, Charles G. Wagner, Broome County; J. Bion Bogart, Elias H. Bartley, J. Fuhs, Kings County; C. W. De Baun, Montgomery County; Joshua L. Barton, G. Passmore Berens, Dillon Brown, Walter Lester Carr, Herman L. Collyer, James K. Crook, B. Farquhar Curtis, H. S. Drayton, Matthias L. Foster, Charles L. Gibson, Thomas H. Haskin, Dwight W. Hunter, Henrietta P. Johnson, Emil Mayer, Robert Milbank, Daniel P. Pease, Grace Peckham Murray, William L. Showell, Waldron B. Vanderpoel, Thomas Darlington, Henry H. Forbes, Frank Van Fleet, Reginald H. Sayre, New York County; William E. Wetmore, Oneida County; B. C. Loveland, Ontario County; George P. Johnson, Oswego County; M. D. Dickinson, Rensselaer County; J. H. Brownlow, St. Lawrence County; Alexander A. Stern, Ulster County; H. F. Hart, Everts M. Morrell, Westchester County.

Previously eligible: Henry H. Morton, David Myerle, Brooklyn; W. B

Melick, Fort Edward; H. A. Gates, Delphi; D. S. Anderson, Owego; George C. Weiss, Mt. Vernon.

II. ELIGIBLE TO HONORARY MEMBERSHIP.

Only physicians residents of other States or foreign countries, not exceeding six in number in one year, can be elected Honorary Members, and they must have been nominated at a previous annual meeting.

Made eligible in 1898: W. W. Keene, Philadelphia, Pa.; Morris H. Richardson, Boston, Mass.

COUNTY MEDICAL SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

(Organized in 1806.)

MEETINGS.—Annual, second Tuesday in May; semi-annual, second Tuesday in October. Stated meetings are held Wednesday evening at Alumni Hall, Albany Medical College, at least once a month, from October to May.

Officers. (May, 1898.)

J. L. Archambeault, <i>President</i> .	G. L. Ullman, <i>Vice-President</i> .
L. H. Neuman, <i>Secretary</i> .	W. H. Happel, <i>Treasurer</i> .
<i>Censors</i> : T. F. C. Van Allen, J. M. Mosher,	T. M. Trego, J. W. Wiltse, J. D. Featherstonhaugh.
<i>Delegates to State Medical Society</i> : A. G. Root, J. F. Barker, C. E. Davis, A. MacFarlane.	

Members.

(Where the town is not mentioned Albany is to be understood.)

H. C. Abrams, Newtonville	C. M. Culver, 36 Eagle st
W. S. Ackert, Rensselaer	F. C. Curtis, 17 Washington av
W. A. Alexander, 79 Schuyler st	J. R. Davidson, South Bethlehem
W. L. Allen, Rensselaer	C. E. Davis, 911½ Hudson av
J. L. Archambeault, Cohoes	G. R. DeSilva, Preston Hollow
Robert Babcock, 102 Lancaster st	Mary DuBois, 192 Hamilton st
Theodore P. Bailey, 95 Eagle st	M. J. Dwyer, 268 Hamilton st
Wm. H. Bailey, 1 Washington av	Noah L. Eastman, 427 Clinton av
Lewis Balch, 14 Washington av	P. J. Fagen, 102 Eagle st
O. D. Ball, 691 Broadway	J. D. Featherstonhaugh, Cohoes
James F. Barker, 54 Clinton av	F. H. Fisk, 1 Clinton square
E. A. Bartlett, 20 S. Hawk st	S. H. Freeman, 77 Columbia st
H. Becker, New Salem	Wm. H. George, Albany
E. J. Bedell, Becker's Corners	W. I. Goewey, 225 Hamilton st
Herman Bendell, 178 State st	F. R. Greene, 542 Central av
J. M. Bigelow, 54 Eagle st	Wm. Hailes, Jr., 197 Hamilton st
L. E. Blair, 204 State st	Lorenzo Hale, 50 Clinton av
J. H. Blatner, 132 Hudson av	W. S. Hale, 50 Clinton av
A. J. Blessing, 114 Grand st	W. H. Happel, 351 S. Pearl st
James P. Boyd, 152 Washington av	J. U. Haynes, Cohoes
W. S. Bristol, 37 S. Ferry st	John V. Hennessey, 35 Clinton av
A. S. Capron, 78 Hudson av	Alfred B. Husted, State cor. Eagle st
T. L. Carroll, 297 Lark st	Henry Hun, 149 Washington av
Daniel C. Case, Slingerlands	F. H. Hurst, 55 Eagle st
F. L. Classen, 34 Trinity place	T. W. Jenkins, 308 Hamilton st
E. V. Colbert, 62 Hudson av	F. M. Joslin, Voorheesville
D. H. Cook, 264 Clinton av	P. J. Keegan, 48 Clinton av
J. L. Cooper, 86 Clinton av	Uriah B. La Moure, 10 Monroe av
Joseph D. Craig, 12 Ten Broeck st	Louis Le Brun, 71 S. Ferry st
J. Crounse, Altamont	M. S. Leavy, 219 Madison av

W. G. Lewi, 94 Westerlo st
 H. Judson Lipes, 1181 Broadway
 G. E. Lochner, 196 State st
 C. C. McCullough, 234 Lark st
 W. G. Macdonald, 27 Eagle st
 A. Macfarlane, 24 S. Hawk st
 M. MacHarg, 787 Madison av
 E. N. K. Mears, 8 Lancaster st
 H. E. Mereness, 184 State st
 C. S. Merrill, 23 Washington av
 J. D. Montmarquet, Cohoes
 C. H. Moore, 23 Washington av
 J. M. Moore, 375 Madison av
 Samuel R. Morrow, 29 S. Hawk st
 J. M. Mosher, 202 Lark st
 G. T. Moston, 611 Central av
 George S. Munson, 30 Eagle st
 W. H. Murray, 269 Lark st
 C. L. Myers, 232 N. Pearl st
 T. W. Nellis, 210 State st
 W. J. Nellis, 210 State st
 L. H. Neuman, 159 Hudson av
 D. V. O'Leary, 10 Ash Grove place
 G. W. Papen, 268 Madison av
 H. S. Pearse, 1 S. Hawk st
 T. Kirk. Perry, 174 Second at
 Charles H. Porter, 103 Lancaster st
 Alonzo T. Powell, Coeymans
 W. L. Purple, 45 Second st
 L. Rancour, Preston Hollow
 C. H. Richardson, 27 Eagle st
 Arthur G. Root, 46 Eagle st
 W. F. Robinson, 214 State st
 W. B. Rossman, 108 Eagle st
 Thomas A. Ryan, 47 Eagle st

W. B. Sabin, Watervliet
 Arthur Sautter, 44 Eagle st
 Wm. L. Schutter, 279 Clinton av
 Seth G. Shanks, 547 Clinton av
 Ralph Sheldon, 86 S. Swan st
 J. V. Sheppy, 11 Madison av
 J. C. Shiland, Watervliet
 J. H. Skillicorn, 324 Hudson av
 C. H. Smith, 246 Washington av
 J. E. Smith, 246 Washington av
 R. J. Smith, 114 Jay st
 Julius B. Southworth, 47 Eagle st
 B. U. Steenberg, 1 Ten Broeck st
 M. D. Stevenson, 51 S. Ferry st
 W. O. Stillman, 287 State st
 R. H. Tedford, Jr., 116 Central av
 C. F. Theisen, 172 Washington av
 John Thompson, 5 Canal st
 T. Markley Trego, 32 Clinton av
 Willis G. Tucker, College Building
 G. L. Ullman, 92 Central av
 T. F. C. Van Allen, 48 Eagle st
 L. Van Auken, Watervliet
 Albert Vander Veer, 28 Eagle st
 Howard Van Rensselaer, 123 State st
 E. Van Slyke, 57 Eagle st
 A. T. Van Vranken, Watervliet
 W. T. Wansboro, 120 Lark st
 S. B. Ward, 281 State st
 J. B. Washburne, Delmar
 James W. Wiltse, 135 N. Pearl st
 L. B. Winne, 72 Livingstone av
 C. E. Witbeck, Cohoes
 Harriet A. Woodward, 42 Chestnut st
 Number of Members, 129.

Deceased: W. J. Kernan, Albany, November 22, 1897, æt. 34; Joseph Lewi, Albany, December 7, 1897, æt. 78; H. G. McNaughton, Albany, April 18, 1898; G. H. Newcomb, February 2, 1898, æt. 73; J. W. Swett, Jr., Albany, October 6, 1897, æt. 32.

MEDICAL SOCIETY OF THE COUNTY OF ALLEGANY.

(Date of organization unknown.)

MEETINGS.—Annual, second Wednesday in May; quarterly, second Wednesday in August, November, and February.

Officers. (May, 1897.)

C. R. Spencer, *President.* Frederick T. Koyle, *Vice-President.*
 A. E. Willard, *Secretary and Treasurer.*
 Attorney: J. F. Rice.

Censors: A. E. Willard, Frederick T. Koyle, C. N. Hammond,
 H. F. Gillett, H. A. Barney.

Committee on Hygiene: A. E. Willard, J. W. Collier, Mark Shephard.

Delegate to State Medical Society: H. F. Gillett.

Members.

Otis Allen, Cuba
 E. W. Ayers, Richburg
 H. A. Barney, Belmont
 C. R. Bowen, Almone
 George E. Burdick, Andover
 O. E. Burdick, Little Genesee
 J. W. Collier, Wellsville
 F. E. Comstock, Andover
 H. E. Cooley, Angelica
 W. W. Crandall, Wellsville
 John P. Crosby, Belfast
 Dorr Cutler, Bolivar
 J. L. Cutler, Bolivar
 C. C. Deming, Friendship
 J. C. Earl, Belmont
 H. F. Gillett, Cuba
 S. W. Green, Richburg
 C. N. Hammond, Angelica
 W. I. Hewitt, Olean
 H. L. Hulett, Allentown

Fred. T. Koyle, Wellsville
 O. N. Latham, Bolivar
 H. H. Lyman, Fillmore
 G. C. McNett, Bath
 Charles W. O'Donne, Andover
 H. A. Place, Ceres
 C. E. Post, Alfred
 H. P. Saunders, Alfred Centre
 Mark Shephard, Alfred Centre
 F. N. Smith, Allentown
 William M. Smith, Angelica
 C. R. Spencer, Angelica
 O. T. Stacy, Rochester, Monroe Co.
 T. S. Thomas, Cuba
 M. B. Titus, Whitesville
 W. F. Wells, Rushford
 A. E. Willard, Friendship
 G. H. Witter, Wellsville

Number of Members, 38.

MEDICAL SOCIETY OF THE COUNTY OF BROOME.

(Organised July 4, 1806.)

MEETINGS.—Annual, first Tuesday in October; quarterly, first Tuesday in January, April, and July.

Officers. (October, 1897).

I. A. Hix, *President.*

F. W. Sears, *Vice-President.*

John Leverett, *Secretary.*

E. H. Wells, *Treasurer.*

Censors: J. H. Chittenden,
 R. A. Seymour,

J. H. Orton, J. M. Farrington,
 A. F. Taylor.

Delegates to State Medical Society: C. G. Wagner, B. E. Radeker.

Members.

(Where the name of the town is not given Binghamton is to be understood.)

S. P. Allen, Lestershire
 J. D. Appley, Harpersville
 N. R. Barnes, 140 Oak st
 H. F. Beardsley, 500 Chenango st
 E. L. Bennett, 278 Chenango st
 J. W. Booth, West Colesville
 D. S. Burr, 145 Court st
 J. H. Chittenden, 51 Main st
 E. N. Christopher, Union
 J. C. Comstock, 1 Lewis st
 W. W. Clark, Maine
 A. W. Cutler, Binghamton
 Dwight Dudley, Maine
 Charles C. Eastman, Binghamton
 State Hospital
 L. O. Eastman, Union
 I. C. Edson, Windsor
 H. O. Ely, 62 Front st
 J. M. Farrington, 11 Jay st

L. D. Farnham, 42 Main st
 F. L. Forker, 38 Fayette st
 K. C. French, Lisle
 C. W. Green, 172 Court st
 J. D. Guy, Chenango Forks
 L. H. Hills, 3 Dwight Block
 I. A. Hix, 144 Court st
 F. P. Hough, 899½ Oak st
 H. S. Hutchinson, 95 Chenango st
 R. C. Irving, "The Arms"
 J. W. Jansen, 28 Exchange st
 J. Killen, 76 Front st
 John Leverett, cor. Chenango and
 Lewis sts
 S. F. McFarland, 76 Front st
 F. M. Michael, 250 Washington st
 W. A. Moore, 223 Washington st
 E. Mulheron, 78 Front st
 W. S. Overton, 114 Court st

J. G. Orton, Henry st and Prospect av	A. F. Taylor, Castle Creek
Ransom J. Perry, Whitney Point	E. L. Teed, Centre Lisle
George E. Pierson, 30½ Cypress st	J. N. Van Alstyne, 100 Hawley st
F. W. Putnam, 210 Vestal av	T. B. Van Alstyne, 324 Chenango st
John F. Place, Jr., 134 Court st	Charles G. Wagner, Binghamton
L. H. Quackenbush, 26 Arthur st	State Hospital
B. E. Radeker, Deposit	E. H. Wells, McCall Block
C. B. Richards, 86 Front st	W. A. White, State Hospital
F. W. Sears, cor. Front and Ferry sts	W. H. Wilson, Lestershire
R. A. Seymour, Whitney Point	L. D. Witherill, Union
F. E. Slater, 2 Lydia st	
Ed. L. Smith, 60 Carroll st	Number of Members, 57.

MEDICAL SOCIETY OF THE COUNTY OF CATTARAUGUS.

MEETINGS.—Annual, at Salamanca, the first Tuesday of May ; quarterly, on the first Tuesday of August, November, and February.

Officers. (May, 1898.)

W. H. Vincent, *President*. S. S. Bedient, *Vice-President*.
Myron E. Fisher, *Secretary and Treasurer*.

Censors: A. D. Lake, F. C. Beals, G. W. Winterstine.

Delegates to State Medical Society: W. B. Johnson, Edward Torrey,
M. C. Hawley.

Members.

J. R. Allen, Olean	George Lattin, Cattaraugus
H. J. Ashley, Machias	T. B. Loughlin, Olean
Frank H. Bartlett, Olean	S. B. McClure, Allegany
Fred. C. Beals, Salamanca	Wm. E. McDuffee, Olean
S. S. Bedient, Little Valley	J. D. Maloy, Olean
F. P. Blair, Allegany	O. S. Martin, Salamanca
J. P. Booth, Olean	J. E. K. Morris, Olean
E. R. Burdick, Olean	S. J. Mudge, Olean
Joseph C. Clark, Olean	J. H. Sackrider, East Randolph
J. P. Colgrove, Salamanca	E. M. Shaffner, Great Valley
E. M. Coss, Cattaraugus	Alfred W. Smallman, Ellicottville
Salina P. Colgrove, Salamanca	Ambrose E. Smith, Olean
W. C. Dallanbaugh, Olean	Cassor A. Smith, Farmerville
Lyman L. Deck, Salamanca	H. D. Snover, Steamburgh
John L. Eddy, Olean	Ransom Terry, Ischua
F. D. Findlay, Franklinville	O. A. Tomkins, Randolph
Myron E. Fisher, Delevan	Edward Torrey, Allegany
M. C. Follet, Olean	W. H. Vincent, Hinsdale
William Follet, Sandusky	H. D. Walker, Franklinville
M. C. Hawley, East Randolph	C. M. Walrath, Ellicottville
Wm. B. Johnson, Ellicottville	G. W. Winterstine, Portville
Clarence King, Machias	E. D. Williams, East Otto
Frederick Krehbiel, Delevan	
A. D. Lake, Gowanda	Number of Members, 46.

Deceased: J. D. V. Coon, Olean, October 22, 1897, æt. 63 ; E. S. Stewart, Ellicottville.

MEDICAL SOCIETY OF THE COUNTY OF CAYUGA.

(Organized August 7, 1806.)

MEETINGS.—Annual, second Thursday in May ; 'semi-annual, second Thursday in November. Regular meetings the second Thursday in August and February.

Officers. (May, 1898.)

Frank Ryan, *President.*
C. H. Bennett, *Secretary.*

S. E. Austin, *Vice-President.*
E. G. Woodruff, *Treasurer.*

Business Committee: John Gerin, F. H. Parker, Frank Ryan.

Committee on Hygiene: A. L. Hall, N. E. Jenkins, Wm. T. Cox.

Delegate to American Medical Association: John Gerin.

Delegates to State Medical Society: E. S. Forman and M. P. Conway.

Members.

(When no town is mentioned Auburn is to be understood.)

D. Armstrong, 8 Grover st
S. E. Austin, 6½ John st
C. O. Baker, 65 Genesee st
M. O. Bentley, Weedsport
F. H. Benedict, Weedsport
C. H. Bennett
M. D. Blaine, 122 Genesee st
N. D. Blood, 5 Aurelius av
B. I. C. Buckland, Fleming
W. S. Cheesman, 22 William st
George E. Clark, Skaneateles
J. P. Conboy, 132 Genesee st
M. P. Conway, 112 Genesee st
W. T. Cox, Moravia
J. P. Creveling, 22 South st
Robert Hill Dee, Fair Haven
F. A. Dudley, King's Ferry
C. A. Fisher, Victory
E. S. Forman, 55 E. Genesee st
E. C. Fuller, Martville
John Gerin, 68 North st
Amelia Gilmor, 28 South st
Geo. W. Gray, Port Byron
Geo. W. Green, 45 E. Genesee st
C. A. Groot, 52 E. Genesee st
A. L. Hall, Fair Haven
W. I. Hoag, Sherwood

A. F. Hodgman, 4 William st
J. P. Horley, Cato
J. M. Jenkins, 162 Genesee st
Nettie E. Jenkins, 162 Genesee st
Wm. R. Laird, 97 North st
Charles L. Lang, Meridian
Leroy Lewis, 14 North st
B. D. Nellis, Weedsport
F. E. O'Brien, 114 Genesee st
B. E. Osborne, 38 Fulton st
Susan G. Otis, 40 South st
J. O. Palmer, 18 William st
F. H. Parker, 156 Genesee st
Frank Putnam, 93 Wall st
Wm. J. Russell, Aurora
Frank Ryan, Moravia
Conant Sawyer, 64 E. Genesee st
Frederick Sefton, 137 South st
George Slocum, Genoa
J. D. Tripp, 163 Genesee st
M. B. Van Buskirk, Aurora
Sheldon Vorhees, 88 North st
J. W. Whitbeck, Cayuga
D. A. White, Montezuma
E. G. Woodruff, 29 William st

Number of Members, 51.

MEDICAL SOCIETY OF THE COUNTY OF CHAUTAUQUA.

MEETINGS.—Annual, second Tuesday in July; semi-annual, third Tuesday in December.

Officers. (July, 1897.)

Morris N. Bemus, *President.* V. M. Griswold, *Vice-President.*
C. A. Ellis, *Secretary and Treasurer.*

Censors: James Murphy, T. D. Strong, Wm. M. Bemus.

Delegates to State Medical Society: E. S. Rich, C. A. Ellis.

Members.

Edward Ames, Kalamazoo, Mich.
Mary Armstrong, Jamestown
N. E. Beardsley, Dunkirk
M. N. Bemus, Jamestown
W. M. Bemus, Jamestown
M. N. Benjamin, Dunkirk

A. J. Bennett, Busti
George E. Blackham, Dunkirk
S. N. Blanchard, Jamestown
A. H. Bowers, Jamestown
H. J. Boyd, Ashville
J. M. Brooks, Jamestown

John J. Caneen, Ripley	W. T. Nash, Irving
M. W. Cowden, Gerry	Jason Parker, Jamestown
H. W. Davis, Falconer	A. J. Phillips, Bear Lake, Pa.
A. E. Dean, Brocton	P. E. Phillips, Bear Lake, Pa.
H. J. Dean, Brocton	C. J. Phillips, Jamestown
F. J. Drake, Stockton	W. A. Putnam, Westfield
Wm. Casper Duke, Cassadaga	E. S. Rich, Kennedy
H. A. Eastman, Jamestown	N. G. Richmond, Fredonia
C. A. Ellis, Sherman	R. T. Rolph, Dunkirk
G. E. Ellis, Dunkirk	H. R. Rodgers, Dunkirk
R. M. Evarts, Silver Creek	C. A. Rood, Brocton
S. E. Ford, Clymer	E. Rood, Westfield
W. J. French, Hamlet	Artemas Ross, Clymer
H. H. Glidden, Panama	E. A. Schofield, Bemus Point
L. C. Green, Panama	E. M. Schofield, Jamestown
V. M. Griswold, Fredonia	J. J. Sharp, Silver Creek
W. M. Haynes, Sherman	O. C. Shaw, Kennedy
Laban Hazeltine, Jamestown	G. E. Smith, Cherry Creek
Edw. R. Hopkins, Silver Creek	J. R. Smith, Conewango Valley
W. W. Hotchkiss, Jamestown	George F. Smith, Sinclairville
E. A. Jones, Jamestown	W. O. Smith, Falconer
J. J. Lenhart, Bemus Point	T. E. Soules, Cherry Creek
A. T. Livingstone, Jamestown	L. H. Snow, Jamestown
C. E. Lundgren, Jamestown	T. D. Strong, Westfield
E. C. Lyman, Jamestown	Walter Stuart, Westfield
L. P. McCray, Clymer	B. S. Swetland, Brocton
J. J. Mahoney, Jamestown	C. H. Waterhouse, Sherman
G. D. Marsh, Sherman	W. D. Wellman, Jamestown
MacDonald Moore, Fredonia	J. H. Wiggins, Jamestown
J. W. Morris, Jamestown	T. C. Wilson, De Wittville
James Murphy, Sherman	Number of Members, 73.

Deceased: B. R. Parks, Jamestown, November 17, 1897, æt. 48.

MEDICAL SOCIETY OF THE COUNTY OF CHEMUNG.

(Organized May 6, 1886.)

MEETINGS.—Annual, third Tuesday in May; quarterly in August, November, and February.

Officers. (1898.)

J. W. Gee, <i>President.</i>	D. H. Reardon, <i>Vice-President.</i>	
Elizabeth M. Hooper, <i>Secretary.</i>	G. V. R. Merrill, <i>Treasurer.</i>	
<i>Censors:</i> T. A. Dundas,	C. L. Squire,	G. V. R. Merrill,
C. W. M. Brown,	Jonas Jacobs.	

Delegate to State Medical Society: W. E. Colegrove.

Members.

(Where no town is mentioned Elmira is to be understood.)

F. C. Annabel, 139 E. Hudson st	M. M. Brown, W. Water st
Charles E. Annabel, Pennsylvania av	R. P. Bush, Horseheads
L. W. Bailey, Millport	Walter C. Byrne, Third and Park pl
A. H. Baker, 319 Baldwin st	Chauncey S. Carey, Opera House Bk
George M. Beard, Millport	George M. Case, 122 N. Main st
D. R. Bowen, Wellsburgh	Reuben R. Chilson, 610 W. Church st
O. J. Bowman, Horseheads	Larue Colegrove, Wellsburgh
J. H. Brewster, 311 Grove st	W. E. Colegrove, Horseheads
C. W. M. Brown, 311 Baldwin st	Woodford J. Copeland, S. Main st

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|---|-------------------------------------|
| E. H. Davis, 202 E. Water st | G. V. R. Merrill, 458 Spaulding st |
| E. G. Drake, 412 W. Church st | D. P. Merritt, 313 W. Clinton st |
| T. A. Dundas, 257 Baldwin st | N. S. Messenger, 555 E. Church st |
| John E. Eldred, 107 S. Main st | J. C. O'Brien, 504 Pennsylvania av |
| W. H. Fisher, S. Main st | Wm. H. Olmstead, Elmira |
| F. H. Flood, 126 N. Main st | F. B. Parke, 304 E. Water st |
| Henry Flood, 403 Lake st | R. B. Pratt, Baldwin and Market sts |
| H. H. Ford, 422 W. Church st | H. De V. Pratt, Jr., 118 Main st |
| H. W. Fudge, 504 Pennsylvania av | D. H. Reardon, 53 South Main st |
| J. W. Gee, Van Ettenville | E. A. Reilly, 518 Lake st |
| C. S. Gere, Chemung | Frank W. Ross, 302 E. Water st |
| A. E. Gleason, Sanitarium | F. H. S. Ritter, E. Church st |
| F. B. Green, 921 Lake st | Delephine Smith, 308 E. Church st |
| Ira F. Hart, 306 E. Church st | G. D. Smith, 107 Spring st |
| C. F. Hawkins, Breesport | N. H. Soble, 505 E. Church st |
| Jessie L. Herrick, E. Church st | C. L. Squire, 409 E. Church st |
| J. Stewart Hill, 151 Lake st | S. F. Stagg, 151 W. Third st |
| Elizabeth Merrit-Hooper, 467 W. Second st | Anna M. Stuart, 418 Williams st |
| F. W. Huff, Wellsburg | Sherman Voorhees, Elmira |
| Jonas Jacobs, 251 Baldwin st | E. H. Wakelee, Big Flats |
| O. E. Jakeway, Breesport | T. A. Wales, 403 William st |
| C. G. R. Jenkins, 272 Baldwin st | Hamilton D. Wey, 359 Main st |
| Emma C. LeFevre, E. Church st | Charles Woodward, 205 Gray st |
| Nathaniel Love, S. Main st | J. C. Young, W. Church st |
| L. H. Merchant, 523 East Union | |

Number of Members, 67.

Non-resident Members.

- | | |
|-------------------------------|-----------------------------------|
| J. H. Cole, Gillett, Pa. | T. S. Updegraff, Pasadena, Cal. |
| H. M. Darling, Corning, N. Y. | S. M. Seafuse, Gillett, Pa. |
| W. D. Davison, Canton, Pa. | C. Voorhees, Daggett's Farm, Pa. |
| Edward Mills, Ulster, Pa. | Fred C. Valentine, 242 W. 43d st, |
| P. B. Roper, Cleveland, O. | New York |

MEDICAL SOCIETY OF THE COUNTY OF CHENANGO.

(Organized in 1806.)

MEETINGS.—Annual, second Tuesday in January; semi-annual, second Tuesday in June.

Officers. (January 12, 1898.)

- | | |
|--------------------------------------|---------------------------------------|
| George D. Johnson, <i>President.</i> | L. C. Andrews, <i>Vice-President.</i> |
| Robert H. Phelps, <i>Secretary.</i> | S. M. Hand, <i>Treasurer.</i> |

Censors: (None elected.)

Delegate to State Medical Society: Louis P. Blair.

Members.

- | | |
|----------------------------------|---------------------------|
| L. C. Andrews, Pitcher | H. S. Gardiner, Hamilton |
| Louis P. Blair, McDonough | D. A. Gleason, Oxford |
| L. J. Brooks, Norwich | O. A. Gorton, Sherburne |
| Vincent Burgess, Brisbin | F. A. Greene, Oxford |
| De Witt C. Crumbs, South Otselic | J. D. Guy, Chenango Forks |
| George Douglas, Oxford | S. M. Hand, Norwich |
| Thomas Dwight, Preston | Blinn A. Harris, Norwich |
| H. T. Elliot, Smithville Flats | P. A. Hayes, Afton |
| E. L. Ensign, Oxford | F. J. Hitchcock, Smyrna |
| R. D. L. Evans, Bainbridge | J. V. Jacobs, Bainbridge |
| T. B. Fernald, Norwich | Reuben Jeffrey, Brooklyn |

George D. Johnson, Greene
 L. M. Johnson, Greene
 J. V. Lewis, North Norwich
 H. C. Lyman, Sherburne
 J. B. Noyes, New Berlin
 B. J. Ormsby, Norwich
 Thurston G. Packer, Smyrna
 L. B. Palmiter, Mt. Upton
 A. T. Perkins, South Otselec
 R. H. Phelps, Norwich
 H. E. Smith, Norwich
 M. E. Smith, South Edmeston

M. E. Smith, Greene
 M. D. Spencer, Guilford
 F. A. Spooner, Sherburne
 W. H. Stuart, Norwich
 R. A. Thompson, Norwich
 J. M. Thorp, Oxford
 L. C. Van Wagner, Sherburne
 G. S. Weaver, McDonough
 H. H. White, Earlville, Madison Co.
 G. O. Williams, Greene
 H. G. Wilse, South Edmeston
 Number of Members, 45.

MEDICAL SOCIETY OF THE COUNTY OF CLINTON.

(Organized October 6, 1807.)

MEETINGS.—Annual, second Tuesday in January ; semi-annual, second Tuesday in July.

Officers. (January, 1898.)

Ethan A. Barnes, *President.* L. C. Dodge, *Vice-President.*
 D. S. Kellogg, *Secretary.* T. B. Nichols, *Treasurer.*

Delegate to State Medical Society : J. G. McKinney.

Members.

C. W. Arthur, Plattsburgh
 Ethan A. Barnes, Plattsburgh
 M. D. Briggs, Champlain
 H. E. Centre, Schuyler Falls
 W. E. Clough, West Chazy
 L. C. Dodge, Rouse's Point
 A. W. Fairbank, Chazy
 J. M. Hackett, Champlain
 Charles S. Haynes, Redford
 Samuel Haynes, Saranac
 O. A. Holcomb, Plattsburgh
 W. S. Honsinger, West Chazy
 E. S. Howe, Ausable Forks
 R. E. Hyde, Beekmantown
 D. S. Kellogg, Plattsburgh
 F. D. Kinsley, Peru
 Elmer E. Larkin, Plattsburgh
 G. E. Letourneau, Rouse's Point
 J. H. LaRocque, Plattsburgh

E. M. Lyon, Plattsburgh
 J. G. McKinney, Plattsburgh
 Frank Madden, Plattsburgh
 S. Mitchell, Jr., Saranac
 A. E. Moody, Mooers
 Sanford H. Newton, Rouse's Point
 T. B. Nichols, Plattsburgh
 J. B. Ransom, Dannemora
 H. H. Reynolds, Ellenburgh Depot
 John J. Robinson, Saranac
 T. Avery Rogers, Plattsburgh
 Clarkson C. Schuyler, Plattsburgh
 J. H. Smith, Plattsburgh
 W. U. Taylor, Mooers
 Walter H. Thayer, Jr., Dannemora
 W. C. Thompson, Plattsburgh
 C. B. Vaughan, Morrisonville
 D. B. Woodward, Ellenburgh
 Number of Members, 36.

Honorary Members.

J. H. Bartholf, U. S. A., Plattsburgh. F. J. Davignon, Ausable
 Lyman G. Barton, Willsborough H. C. Fisher, U. S. Army
 Charles B. Byrne, U. S. Army A. M. Larkin, Plattsburgh

MEDICAL SOCIETY OF THE COUNTY OF COLUMBIA.

MEETINGS.—Annual, first Tuesday in May at City Hall, Hudson ; semi-annual, first Tuesday in October at Chatham.

Officers. (May, 1898.)

J. W. King, *President.* W. S. Gardiner, *Vice-President.*
 T. Floyd Woodworth, *Secretary and Treasurer.*

Censors: E. E. Martin, G. P. K. Pomeroy, N. D. Guernsey,
J. W. King, M. Sheldon.
Delegate to State Medical Society: J. W. King.

Members.

J. H. Allen, Churchtown	Nelson E. Mesick, Glenco Mills
Milford L. Bates, Canaan 4 Corners	Emmett Niver, Hillsdale
John C. Benham, Hudson	Elwood Oliver, Ancram
O. Howard Bradley, Hudson	Wm. B. Platner, Germantown
T. J. Clelland, Lebanon	George P. K. Pomeroy, Stuyvesant
F. D. Clum, Cheviot	George W. Rossman, Ancram
F. W. Cordes, Copake	M. Sheldon, Valatie
Henry Cornell, Hillsdale	P. W. Shufelt, East Taghkanic
G. H. Davis, East Chatham	H. Lyle Smith, Hudson
P. S. Flanagan, Lebanon Springs	Wm. O. Smith, Germantown
Crawford E. Fritts, Hudson	Wm. D. Swain, Copake
W. S. Gardiner, Claverack	G. E. Swift, Hudson
John J. Glover, Stuyvesant Falls	A. R. Van Dusen, Claverack
N. D. Garnsey, Kinderhook	George W. Vedder, Philmont
Jacob Horton, Livingston	I. C. Washburne, Chatham
H. W. Johnson, Hudson	H. G. Westlake, Hillsdale
J. W. King, Stottsville	John T. Wheeler, Chatham
Martin M. Kittle, Kinderhook	Thomas Wilson, Claverack
F. T. Kunker, North Chatham	Richard A. Woodruff, Philmont
Jordan W. Lockwood, Philmont	T. F. Woodworth, Kinderhook
E. E. Martin, Stottsville	Number of Members, 41.

MEDICAL SOCIETY OF THE COUNTY OF CORTLAND.

(Organized August 10, 1806.)

MEETINGS.—Annual, second Thursday in June; semi-annual, second Thursday in December; quarterly, second Thursdays in September and March.

Officers.

M. L. Halbert, <i>President.</i>	R. L. Smith, <i>Vice-President.</i>
Frank H. Green, <i>Secretary, Treasurer, and Librarian.</i>	
<i>Censors:</i> F. W. Higgins,	H. T. Dana,
F. H. Forshee,	S. J. Sornberger,
	C. E. Bennett.
<i>Delegate to State Medical Society:</i> F. W. Higgins.	

Members.

E. H. Barnes, Marathon	Homer O. Jewett, Cortland
I. A. Beach, Cortland	Benj. Kinyon, Cincinnati
Charles E. Bennett, Cortland	J. E. Leonard, Harford
Paul T. Carpenter, Cuyler	Edward M. McBirney, Willet
George D. Bradford, Homer	W. J. Moore, Cortland
A. S. Braman, Homer	Philip Neary, Cortland
Henry T. Dana, Cortland	Frank D. Reese, Cortland
E. A. Didama, Cortland	M. R. Smith, McGrawville
H. Sheldon Edson, Cortland	R. L. Smith, Marathon
F. H. Forshee, McGrawville	S. J. Sornberger, Cortland
Frank H. Green, Homer	H. T. Van Hoesen, Truxton
M. L. Halbert, Cincinnati	Charles D. Vernoooy, Cortland
A. L. Head, Homer	Sumner C. Webb, Homer
H. C. Hendrick, McGrawville	J. W. Whitney, Homer
Francis W. Higgins, Cortland	
Herman D. Hunt, Preble	Number of Members, 30.

Deceased: L. T. White, Cortland, January, 16, 1898, æt. 54.

MEDICAL SOCIETY OF THE COUNTY OF DELAWARE.

(Organized July 1, 1806.)

MEETINGS.—Annual, second Tuesday in June; semi-annual, in the Fall.

*Officers.*G. T. Scott, *President.*E. B. Lake, *Vice-President.*Stanton Hendricks, *Secretary.*George H. Reynolds, *Treasurer.**Censors:* Thomas Wight, G. C. Smith, H. A. Gates, J. N. Wright.*Delegate to State Medical Society:* H. A. Gates.*Members.*

Charles S. Allaben, Margaretville
 Howard Bell, Delhi
 George H. Brinkman, Sidney
 Robert Brittain, Downsview
 S. S. Cartwright, Roxbury
 S. E. Churchill, Stamford
 Thomas L. Craig, Davenport
 William J. Cranston, Trout Creek
 S. Decker, Griffin's Corners
 Gilbert J. Dickson, Bovina
 A. R. Ellis, Roxbury
 H. A. Gates, Delhi
 J. A. Gladstone, Andes
 W. D. Heimer, Hamden
 Stanton Hendricks, Treadwell
 C. J. Hillis, Griffin's Corners
 James A. Holley, Walton
 Austin D. Johnson, East Branch
 E. B. Lake, Meredith Hollow
 R. R. Leonard, Bloomville

Homer M. Mace, Hobart
 E. D. McKenna, Walton
 E. A. Miller, Arena
 W. A. Minor, Bloomville
 John A. Montgomery, Walton
 William B. Morrow, Walton
 William Ormiston, Delhi
 Gervase P. Peck, Davenport Centre
 S. C. Pettingill, Hancock
 Lyman Phinney, Bovina Centre
 B. E. Radiker, Dupont
 Gilbert T. Scott, Davenport
 George C. Smith, Delhi
 William G. Smith, Walton
 William C. Telford, Bovina
 S. J. White, Franklin
 Thomas Wight, Andes
 John V. Winne, Sidney
 J. N. Wright, Grand Gorge
 Number of Members, 39.

MEDICAL SOCIETY OF THE COUNTY OF DUTCHESS.

(Organized in 1806.)

MEETINGS.—Annual, second Wednesday in January, at Poughkeepsie; semi-annual, second Wednesday in June.

Officers. (January, 1897.)G. H. Van Wagner, *President.*C. W. Pilgrim, *Vice-President.*J. S. Wilson, *Secretary.*D. B. Ward, *Treasurer.**Censors:* Alfred Hasbrouck, Robert K. Tuthill, E. H. Gerow.*Delegates to State Medical Society:* H. E. Allison, J. E. Sadlier.*Members.*

H. E. Allison, Matteawan
 B. N. Baker, Rhinebeck
 Thomas E. Bamford, Hudson River
 State Hospital
 Edwin Barnes, Pleasant Plains
 H. Weston Barnum, Poughkeepsie
 H. E. Baright, Hudson River State
 Hospital, Poughkeepsie
 T. J. Barton, Red Hook
 Guy C. Bayley, Poughkeepsie

J. S. Bird, Hyde Park
 W. Langdon Bird, State Asylum,
 Matteawan
 Nelson Borst, Poughkeepsie
 Charles E. Buffington, Pawling
 E. M. Burns, Poughkeepsie
 R. J. Carroll, Red Hook
 G. B. Chapman, Amenia Union
 J. M. Cleveland, Poughkeepsie
 G. H. Coddling, Amenia

W. J. Conklin, Fishkill	J. C. Payne, Poughkeepsie
S. W. M. Cornelius, Staatsburg	Paul A. Philips, Hudson River State
H. L. Cookingham, Red Hook	Hospital, Poughkeepsie
Isaac M. Cornell, Wappinger's Falls	H. Pierce, Pawling
J. E. Courtney, Hudson River State	C. W. Pilgrim, Hudson River State
Hospital, Poughkeepsie	Hospital, Poughkeepsie
G. E. Coutant, Poughkeepsie	J. O. Pingry, Mill Brook
Wm. Cramer, Poughkeepsie	J. W. Poucher, Poughkeepsie
Thomas K. Cruse, Wappinger's Falls	Horace R. Powell, Poughkeepsie
John H. Cotter, Poughkeepsie	Churchill A. Pritchard, Tivoli
John H. Cotter, Jackson Corners	M. T. Pultz, Stamfordville
R. R. Daley, State Asylum, Matteawan	Emma Putnam, Hudson River State
W. G. Dobson, Poughkeepsie	Hospital, Poughkeepsie
J. H. Doughty, Matteawan	L. E. Rockwell, Amenia
Thomas J. Doughty, Matteawan	Selwyn A. Russell, Poughkeepsie
H. K. Dubois, Bangall	J. E. Sadlier, Poughkeepsie
D. W. Dumond, Millerton	D. W. Sheedy, Poughkeepsie
J. R. English, Fishkill-on-Hudson	J. Spratling, State Asylum for Insane
A. T. Fink, Freedom Plains	Criminals, Matteawan
Charles L. Fletcher, South Dover	J. O. Stranahan, Hudson River State
Elizabeth H. Gerow, Poughkeepsie	Hospital, Poughkeepsie
I. G. Harris, Hudson River State	L. A. Sutton, East Fishkill
Hospital, Poughkeepsie	Elizabeth Thelberg, Poughkeepsie
Alfred Hasbrouck, Poughkeepsie	C. H. Thompson, Fishkill
W. Herrick, Milan	Leon Tice, Rhinebeck
A. F. Hoag, Millerton	C. H. Tripp, Clinton Corners
F. T. Hopkins, Fishkill-on-Hudson	R. K. Tuthill, Poughkeepsie
Edwin L. Hoyt, Shultzville	G. A. Van Wagner, Wappinger's Falls
J. M. Hunting, Stamfordville	D. B. Van Wyck, Manchester Bridge
George Huntington, La Grangeville	D. B. Ward, Poughkeepsie
C. Hustis, Matteawan	W. S. Watson, Matteawan
George E. Johnson, Pine Plains	G. M. Wellman, Dover Plains
M. Julien, Pleasant Valley	Henry D. White, Hopewell Junction
J. Kinkhead, Poughkeepsie	Howell White, Fishkill
D. A. Knapp, North Clove	H. C. Wilbur, Pine Plains
J. T. C. Lamb, Poughkeepsie	Frank Williams, Hudson River State
Robert B. Lamb, Matteawan	Hospital, Poughkeepsie
Charles H. Langdon, Poughkeepsie	George H. Williams, Fishkill-on-
I. D. Leroy, Pleasant Valley	Hudson
E. Losee, Bangall	P. T. Williamson, Poughkeepsie
John E. Losee, Upper Red Hook	J. P. Wilson, Poughkeepsie
Warren C. McFarland, Mooers Mills	J. S. Wilson, Poughkeepsie
I. N. Mead, Amenia	L. C. Wood, Wappinger's Falls
J. E. Moith, Fishkill	W. C. Wright, Matteawan
G. W. Murdock, Cold Spring, Put-	J. Young, Fishkill-on-Hudson
nam Co.	
M. C. Northrup, Pleasant Valley	Number of Members, 99.

MEDICAL SOCIETY OF THE COUNTY OF ERIE.

MEETINGS.—Annual, second Tuesday in January ; semi-annual, second Tuesday in June.

Officers. (1898.)

Lucien Howe, *President.*

J. B. Coakley, *Vice-President.*

Franklin C. Gram, *Secretary.*

Edward Clark, *Treasurer.*

Wm. C. Callanan, *Librarian.*

Censors : J. B. Coakley,

T. F. Dwyer,

J. F. Krug,

C. E. Congdon,

I. W. Potter.

Delegates to State Medical Society: H. U. Williams, A. W. Hurd,
T. B. Carpenter, G. W. Wende, E. A. Smith,
J. G. Thompson, E. P. Lothrop, P. W. Van Peyma.

Membership Committee: W. W. Potter, Geo. W. McPherson, J. J. Walsh.

Members.

(Where no town is mentioned Buffalo is to be understood.)

Frank W. Abbott, 223 Franklin st
George Abbott, Hamburg
Arthur B. Allen, 950 Fillmore av
Thomas G. Allen, 419 Elk st
J. Stone Armstrong, 195 14th st
Chas. H. W. Auel, 277 High st
Stanley C. Babcock, 2319 Main st
John E. Bacon, 79 Niagara sq
Lucius L. Ball, 190 Dearborn st
Edward H. Ballou, Gardenville
Rollin L. Banta, 358 S. Division st
Westervelt Banta, 407 Perry st
Edwin R. Barnes, 1258 West av
William C. Barrett, 208 Franklin st
T. L. Barry, Willink
Bernard Bartow, 481 Delaware av
A. W. Bales, 278 Genesee st
A. L. Benedict, 174 Franklin st
A. G. Bennett, 90 W. Chippewa st
Henry G. Bentz, 894 Michigan st
W. D. Bidaman, 335 Connecticut st
Henry H. Bingham, 2485 Main st
Jay J. Birmingham, 123 Pratt st
Elias S. Bissell, 2793 Main st
William G. Bissell, Department of
Health, Buffalo
John Boardman, 210 Delaware av
Loren F. Bois, 286 Norwood av
John D. Bonner, 144 Jewett av
Bentley S. Bourne, Hamburg
Charles W. Bourne, Hamburg
Carlos F. Bowman, Alden
Clara E. Bowen, 1087 Lovejoy st
F. E. L. Brecht, 361 William st
Albert H. Briggs, 267 Hudson st
Elmer E. Briggs, 879 Clinton st
Mark N. Brooks, Springville
George L. Brown, 173 Niagara st
Ira C. Brown, 411 14th st
Frank F. Bruso, 203 Amherst st
Frank A. Burghardt, 632 Elm st
L. Burrows, 388 Franklin st
Paul F. Bussman, 495 Jefferson st
Henry C. Buswell, 868 Main st
Wm. C. Callanan, 190 Front av
Robert E. Campbell, 267 North st
Thomas B. Carpenter, Board of
Health, Buffalo
Evangeline Carroll, 285 Ashland av
Jane W. Carroll, 238 Ashland av
Henry T. Carter, 210 Hoyt st

Charles Cary, 340 Delaware av
Wm. H. Chace, 266 Connecticut st
John S. Champlin, 1872 Niagara st
N. Victoria Chappell, 326 W. Ferry st
Chas. O. Chester, 201 Franklin st
Chas. P. Clark, 236 E. Eagle st
Edward Clark, 854 Ellicott Square
Horace Clark, 21 North st
Charles A. Clements, 312 Sycamore st
Wm. P. Clothier, 1126 Main st
John B. Coakley, 339 Delaware av
Bernard Cohn, 540 Niagara st
A. E. Collins, 248 Dearborn st
A. J. Colton, 27 E. Ferry st
Chas. E. Congdon, 1034 Jefferson st
D. J. Constantine, 528 West av
Miles B. Cook, 105 Glenwood av
Benjamin W. Cornwell, Buffalo
George F. Cott, 531 Mooney Building
Albert H. Crawford, 274 Swan st
Floyd S. Crego, 469 Delaware av
Montgomery A. Crocket, 452 Frank-
lin st
Byron H. Daggett, 258 Franklin st
John Dambach, 417 Michigan st
Clayton M. Daniels, 315 Jersey st
Earl G. Danser, 592 Walden av
Lewis P. Dayton, 325 Bryant st
L. A. Denton, 445 Franklin st
Mary J. Denton, 445 Franklin st
Alfred E. Diehl, 361 Pearl st
Conrad Diehl, 32 W. Genesee st
E. M. Dooley, 406 Louisiana st
Elias T. Dorland, 388 Elmwood av
L. Bradley Dorr, 300 Jefferson st
Samuel G. Dorr, 300 Jefferson st
Wm. Dowlmen, 536 Swan st
J. J. Drake, 457 Breckinridge st
Sidney A. Dunham, 72 W. Chippewa
Thomas F. Dwyer, 89 West av
Wesley C. Earl, 1541 Niagara st
David C. Eisbein, 399 Broadway
Charles P. Eller, 1440 Jefferson st
Henry S. Ellwood, 9 W. Mohawk st
Alfred F. Erb, Clarence, N. Y.
Clark E. Ernest, 282 W. Ferry st
J. Glen Ernest, 386 Walden av
George E. Fell, 72 Niagara st
F. H. Field, Depew
C. G. Fisher, 159 Laurel st
John D. Flagg, 125 E. Eagle st

Edgar A. Forsyth, 369 West av
Joseph Fowler, 141 Delaware av
Carlton C. Frederick, 64 Richmond av
Jane N. Frear, 28 Orton Place
Edward L. Frost, 489 Plymouth av
William C. Fritz, 164 E. North st
Maud J. Frye, 224 Allen st
Wm. H. Gail, East Aurora
E. J. Gilray, Erie County Hospital
Frank M. Gipple, Bowmansville
Jacob Goldberg, 145 Cedar st
Sigmond Goldberg, 584 N. Division st
John N. Goltra, 441 Elmwood av
Franklin C. Gram, 460 Glenwood av
H. J. Grant, 302 Brouck av
John R. Gray, 224 Front av
Mary T. Green, Pike, N. Y.
Stephen S. Greene, 328 Niagara st
De Witt C. Greene, 1125 Main st
Joseph C. Greene, 1125 Main st
Walter D. Greene, 385 Jersey av
Willis G. Gregory, 530 Main st
J. W. Grosvenor, 118 Plymouth av
Benjamin H. Grove, 334 Pearl st
Carl H. Guess, 73 Main st
Adelbert G. Guamaer, 802 Bailey av
Joseph Haberstro, 769 Genesee
Robert S. Hambleton, Kenmore
Lawrence G. Hanley, 696 Seneca st
Robert Hebenstreit, 430 Broadway
Deville W. Harrington, 1430 Main st
John T. Harris, Tonawanda
Marcell Hartwig, 38 E. Huron st
John Hauenstein, 309 Elmwood av
Herman E. Hayd, 493 Delaware av
Frederick W. Hayes, 91 Broadway
Geo. J. Hearne, 191 Auburn av
George B. Hepp, 796 Towanda st
F. E. Hill, 532 Swan st
G. J. Himmelsbach, 137 W. Tupper st
F. Whitehall Hinkel, 305 Delaware av
John A. Hoffmeyer, 150 East st
John Honsberger, 261 Elmslie st
Henry R. Hopkins, 433 Franklin st
Patrick H. Hourigan, 904 Clinton st
Charles F. Howard, 1415 Main st
Lucien Howe, 183 Delaware av
Stephen Y. Howell, 164 Franklin st
Burt P. Hoyer, 216 N. Division st
F. F. Hoyer, Tonawanda
Alvin A. Hubbell, 212 Franklin st
Howard L. Hunt, Orchard Park
Mary M. Huntley, 369 Hudson st
Arthur W. Hurd, State Hospital
Henry D. Ingraham, 405 Franklin st
Wm. H. Jackson, Springville
C. R. Jennings, Alden
Wm. E. Jennings, Boston
Carlton R. Jewett, 1299 Main st

Charles S. Jewett, 892 Main st
B. C. Johnson, 274 E. Utica
Thomas M. Johnson, 161 E. Ferry st
Ray H. Johnson, 180 N. Division st
Allen A. Jones, 436 Franklin st
Andrew Kamerling, 171 Bryant st
Hiram A. Kendall, 786 Elmwood av
John Ketchum, 302 Hampshire st
A. B. Kinsley, 356 Swan st
Edward E. Koehler, 733 Broadway
Jacob M. Krauss, 891 Michigan st
Wm. C. Krauss, 371 Delaware av
Lewis Krombein, 246 Elm st
Julius F. Krug, 870 Broadway
Helena Kuhlman, State Hospital
Henry Lapp, Clarence
Cora B. Lattin, 156 Humboldt
Henry W. Latin, 156 Humboldt
Ada C. Latham, 174 Dodge st
H. C. Leonhardt, Tonawanda
Clarence B. Le Van, 1123 Jefferson st
George W. T. Lewis, 318 Ashland av
Edward Little, 161 Main st
Benjamin G. Long, 520 Elmwood av
Eli H. Long, 1335 Main st
C. E. Long, 192 Richmond av
B. H. Lonsbury, 735 Elmwood av
Benj. L. Lothrop, 81 Breckenridge st
Earl P. Lothrop, 153 Delaware av
Thomas Lothrop, 153 Delaware av
U. C. Lynde, 241 Swan st
A. T. Lytle, 260 Lexington av
Albert H. McBeth, 35 West Eagle st
J. J. McCullough, Main & Dodge sts
William A. McFarlane, Springville
George W. McPherson, Lancaster
John D. McPherson, Akron
Gustavus E. Mackay, 47 W. Swan st
Matthew D. Mann, 37 Allen st
Marion Marsh, 223 E. Ferry st
Andrew J. Martin, Clarence
H. G. A. Matzinger, 519 Franklin
Charles S. Meahl, 84 William st
H. Mead, 465 W. Ferry st
John G. Meidenbauer, 291 Maple st
F. T. Metcalf, 329 Franklin st
William Meisburger, 430 Broadway
Reuben S. Meyers, Clarence Centre
E. J. Meyer, 1312 Main st
Herbert Mickle, 26 Linwood av
John Middleton, 233 Massachusetts st
Jacob Miller, 1115 Genesee st
John G. Miller, Lancaster
F. H. Milliner, 785 Niagara av
Edwin H. Millring, 148 Chenango st
David A. Morrison, 509 Virginia st
Henry J. Mulford, 466 Franklin st
Katharine Munhall, 378 Auburn av
Henry B. Murray, Tonawanda

Herman Mynter, 566 Delaware av
 Henry Nichell, 80 Sycamore st
 E. C. W. O'Brien, 439 Delaware av
 A. T. O'Hara, 770 E. Ferry st
 Wm. J. Packwood, 1280 Michigan av
 Roswell Park, 510 Delaware av
 L. P. L. Parker, Akron
 John Parmenter, 372 Franklin st
 R. L. Patterson, 537 Franklin st
 George W. Pattison, 22 Chippewa st
 Albert E. Persons, 228 Franklin st
 John A. Pettit, 519 Swan st
 Edward N. Pfohl, 539 Main st
 Wm. C. Phelps, 146 Allen st
 Gustav A. Pohl, 96 Lemon st
 Julius Pohlman, Franklin st
 James S. Porter, 289 Cedar st
 Irving W. Potter, 749 Broadway
 Julius H. Potter, 177 Dearborn st
 Samuel Potter, Lancaster
 Wm. W. Potter, 284 Franklin st
 Fred. H. Powell, 179 Franklin st
 Frederick Preiss, 115 Franklin st
 William Preiss, 160 Franklin st
 John H. Pryor, 56 Allen st
 James W. Putnam, 525 Delaware av
 Lillian C. Randall, 217 Franklin st
 H. M. Reinhardt, 857 Jefferson st
 W. Scott Renner, 361 Pearl st
 Charles J. Reynolds, 322 Fox st
 Francis M. Rich, 284 Richmond av
 Charles A. Ring, 364 Niagara st
 Wm. G. Ring, 364 Niagara st
 Wm. E. Robbins, Hamburg
 DeLancey Rochester, 469 Franklin st
 Benjamin F. Rogers, 221 Franklin st
 Reuben M. Root, 537 William st
 T. Haven Ross, 551 Elmwood st
 R. R. Ross, Buffalo General Hospital
 E. J. Rulison, 37 Elmwood av
 Clinton A. Sage, 224 W. Ferry st
 Louis Schade, 244 Goodell st
 C. A. Schladermundt, 510 William st
 Ludwig Schroeter, 529 Fillmore av
 Macy B. Searla, East Aurora
 H. E. Shelden, 433 Breckenridge st
 Hewitt H. Sherman, 666 Main st
 C. S. Siegfried, 378 Franklin st
 Duncan Sinclair, Tonawanda
 George H. Sisson, 187 Plymouth av
 Wm. H. Slacer, 200 Niagara st
 C. M. Smith, 494 Massachusetts st
 Eugene A. Smith, 771 Ellicott st
 Edward T. Smith, 189 14th st
 James S. Smith, 66 High st
 Louis G. Smith, 300 Elk st
 Irving M. Snow, 476 Franklin st

Frederick H. Stanbro, Springville
 Loren H. Staples, 121 E. Ferry st
 Elmer Starr, 174 Franklin st
 Edw. T. Stevens, 440 Massachusetts st
 T. Selden Stewart, 158 15th st
 Charles G. Stockton, 436 Franklin st
 James Stoddard, 162 14th st
 Eugene E. Storck, 510 William st
 Brayton N. Strong, Boston
 O. C. Strong, Colden
 Ransford C. Tabor, Tonawanda
 Fridolin Thoma, 1072 Lovejoy st
 Otton Thoma, 1014 Genesee st
 John C. Thompson, 55 Amherst st
 Justin G. Thompson, Angola
 Frank J. Thornbury, 469 Delaware av
 Wm. H. Thornton, 570 Niagara st
 Emil S. Tobie, 41 E. Mohawk st
 H. S. Townsend, 1177 Seneca st
 Hiram P. Trull, Williamsville
 E. H. Tweedy, 394 Vermont st
 John J. Twohey, 301 Mastin st
 C. A. Tyler, Alden
 Julius Ullman, 400 Franklin
 F. P. Vandenberg, 32 Lewis Block
 P. W. Van Peyma, 445 William st
 W. Van Peyma, 1294 Fillmore st
 Frank B. Voght, 926 Fillmore st
 Charles A. Wall, 306 Hudson st
 John J. Walsh, 480 Ellicott st
 Walden M. Ward, North Collins
 F. L. Watkins, 13 William st
 Ernest Wende, 471 Delaware av
 Geo. W. Wende, 471 Delaware av
 Julius Wenz, Lancaster
 Geo. H. Westinghouse, 313 Fargo av
 Mary B. Wetmore, 30 Woodlawn av
 Samuel W. Wetmore, 30 Woodlawn av
 Charles H. Wetzel, 697 Jefferson st
 Isaac G. Wheeler, 191 Eagle st
 Electa B. Whipple, 491 Porter av
 John E. Whitmore, 1099 Genesee st
 J. F. Whitwell, 368 Swan st
 Herbert U. Williams, 221 North st
 Matthew Willoughby, 39 Franklin st
 Edw. R. Wise, Williamsville
 Albert B. Wilson, 218 Virginia st
 James P. Wilson, 867 Niagara st
 A. E. Woehnert, 436 Franklin st
 Cardinal T. Woolsey, 12 S. Division st
 Wm. H. Woodbury, 991 William st
 Chas. H. Woodward, 865 Niagara st
 John W. Woodruff, 17 Unger av
 Cornelius C. Wyckoff, 482 Dela. av
 George W. York, 190 Franklin st
 Edson H. Young, 444 Elk st

Number of Members, 330.

Deceased: John Cronyn, Buffalo, February 11, 1898, æt. 73; Edward Storck, Buffalo, July 26, 1897, æt. 66.

MEDICAL SOCIETY OF THE COUNTY OF ESSEX.

ANNUAL MEETING.—Third or fourth Tuesday in May.

(Officers. May, 1898.)

Hannibal W. Rand, *President*. F. S. Hallett, *Vice-President*.A. C. Grover, *Secretary*. F. S. Hallett, *Treasurer*.*Censors*: A. C. Grover, Robert T. Saville, Charles T. Walton.*Delegate to State Medical Society*: F. S. Hallett.*Members.*

Lyman Barton, Willsborough
 Lyman G. Barton, Willsborough
 Jesse T. Braman, Wadhams Mills
 Benjamin W. Burland, Schenectady
 Francis J. D'Avignon, Ausable Forks
 E. J. Dunn, Schroon Lake
 Allen C. Grover, Port Henry
 F. S. Hallett, Elizabethtown
 Edwin S. Howe, Ausable Forks
 Martin J. LaBell, Lewis
 Chas. S. McLaughlin, Ticonderoga
 A. V. Marshall, Moriah Corner
 Albinus J. Merrill, Upper Jay

Dudley Palmer, Schroon
 W. E. Pattison, Westport
 Hannibal W. Rand, Keene
 Robert T. Saville, Mineville
 Conant Sawyer, Auburn
 Wm. T. Sherman, Crown Point Centre
 Melvin H. Turner, Ticonderoga
 Chas. T. Walton, Port Henry
 Chas. B. Warner, Port Henry
 Joseph Warner, Crown Point
 Rollin C. Wilcox, Ticonderoga

Number of Members, 24.

MEDICAL SOCIETY OF THE COUNTY OF FRANKLIN.

(Organized in 1814; reorganized in 1848.)

MEETINGS.—Annual, first Tuesday in January; semi-annual, first Tuesday in June; quarterly, first Tuesday in September.

(Officers. (January, 1898.)

C. Crippen, *President*. ———, *Vice-President*.R. J. Wilding, *Secretary and Treasurer*.*Censors*: W. A. Atwater, W. H. Harwood, G. H. Oliver.*Delegate to State Medical Society*: P. F. Dolphin.*Members.*

W. A. Atwater, S. Regis Falls
 J. O. A. Beaupre, Malone
 L. C. Brunet, Brushton
 C. Crippen, Trout River
 P. F. Dolphin, Malone
 C. Fulton, Fort Covington
 H. Furness, Malone
 T. Gay, Malone
 J. A. Grant, Malone
 W. H. Harwood, Chasm Falls
 G. Howe, Chateaugay
 C. Hastings, Constable
 J. A. Johnson, Chateaugay
 E. A. La Rocque, Malone
 F. Markle, Bangor
 W. C. Mills, Chateaugay
 E. S. McClellan, Saranac Lake

C. McConnell, Hogansburgh
 W. S. Nelson, Saranac Lake
 G. H. Oliver, Malone
 C. E. Pearl, North Bangor
 H. S. Rockwood, Bombay
 E. A. Rust, Moira
 C. D. Silver, Chateaugay
 C. Skinner, Malone
 J. A. Smart, Fort Covington
 C. B. Smith, West Bangor
 E. E. Thurber, Brainardville
 J. S. Van Vechten, Chateaugay
 F. D. Whitehead, Burke
 A. G. Wilding, Malone
 R. J. Wilding, Malone

Number of Members, 32.

MEDICAL SOCIETY OF THE COUNTY OF FULTON.

MEETINGS.—Annual, second Thursday in January ; semi-annual, second Thursday in June.

Officers. (January, 1898.)

L. R. Oatman, <i>President.</i>	M. Somers, <i>Vice-President.</i>
J. D. Vedder, <i>Secretary.</i>	J. K. Thorne, <i>Treasurer.</i>
<i>Censors :</i> A. C. Hagedorn,	C. B. Mosher, Frank Beebe.
<i>Delegate to State Medical Society :</i> D. V. Still.	

Members.

Eugene Beach, Gloversville	A. C. Hagedorn, Gloversville
Frank Beebe, Johnstown	J. W. Joslin, Johnston
John E. Burdick, Johnstown	Charles B. Mosher, Johnstown
L. J. Daily, Gloversville	L. R. Oatman, Gloversville
John Edwards, Gloversville	F. W. Shaffer, Gloversville
L. R. Ellithorpe, Johnstown	M. Somers, Johnstown
Nelson Everest, Gloversville	David V. Still, Johnstown
H. C. Finch, Broadalbin	J. K. Thorne, Gloversville
Peter R. Furbeck, Gloversville	J. D. Vedder, Johnstown
W. S. Garnsey, Gloversville	C. B. Walrad, Johnstown
E. H. Goodfellow, Gloversville	James K. Young, Johnstown
J. A. Hagar, Gloversville	Number of Members, 28.

MEDICAL SOCIETY OF THE COUNTY OF GENESEE.

(Organized about 1811.)

MEETINGS.—Annual, second Tuesday in June ; semi-annual, second Tuesday in January, at Batavia.

(Society at present not in active existence.)

MEDICAL SOCIETY OF THE COUNTY OF GREENE.

(Organized July, 1806 ; reorganized October 18, 1859.)

MEETINGS.—Annual, second Tuesday in May ; semi-annual, second Tuesday in October ; quarterly, second Tuesday in July and January.

Officers. (1898.)

C. P. McCabe, <i>President.</i>	H. E. Lomax, <i>Vice-President.</i>
W. C. Wright, <i>Secretary.</i>	C. E. Willard, <i>Treasurer.</i>
<i>Delegate to State Medical Society :</i> E. H. Merriam.	

Members.

Ambrose Beach, Coxsackie	Nelson H. Griffin, Cairo
S. S. Carter, Ashland	George Haner, Tannersville
Charles H. Cubb, Palenville	S. A. Holcomb, Palenville
F. S. Cole, Cairo	W. F. Lamont, Catskill
George Conklin, Durham	Howard E. Lomax, New Baltimore
F. S. Deyoe, Hunter	Bradley S. McCabe, Greenville
E. E. Elliott, Catskill	Charles P. McCabe, Greenville
Nelson Fanning, Jr., Catskill	H. M. Mace, Catskill
Edwin L. Ford, Lexington	J. H. Mead, Hunter
S. L. Ford, Heusonville	William H. Mead, Windham
Henry J. Griffin, Cairo	E. H. Merriam, Coxsackie

George H. Noble, Cairo
 J. B. Rouse, Leeds
 L. Safford, East Durham
 F. R. Searles, Hunter
 Robert Selden, Catskill
 W. B. Shaw, New Baltimore
 P. J. Stanley, Windham
 I. T. Sutton, Prattville
 Edmund C. Van Deusen, Athens

I. J. Van Hoesen, Medway
 Louis Van Hoesen, Coxsackie
 A. W. Van Slyke, Coxsackie
 W. A. Wasson, Greenville
 F. A. Wheeler, Athens
 Charles E. Willard, Catskill
 W. C. Wright, Leeds

Number of Members, 38.

HAMILTON COUNTY.

(Has no Medical Society.)

MEDICAL SOCIETY OF THE COUNTY OF HERKIMER.

(Organized August 5, 1806.)

MEETINGS.—Annual, first Tuesday in March at the Court-house in Herkimer; semi-annual, first Tuesday in September; quarterly, first Tuesday in June and December. The place for all meetings, except the annual, is designated at the annual meeting.

Officers. (March, 1898.)

George S. Eveleth, <i>President.</i>	O. H. Deck, <i>First Vice-President.</i>
C. G. Strobel, <i>Second Vice-President.</i>	U. G. Williams, <i>Third Vice-President.</i>
A. Walter Suiter, <i>Secretary.</i>	George Graves, <i>Treasurer.</i>

F. M. Barney, *Librarian.*

Committee on Hygiene: E. M. Draper, S. S. Richards, J. E. Casey,
 I. S. Edsall, U. G. Williams.

Committee on Microscopy: W. D. Garlock, *Chairman.* O. H. Deck,
 A. Walter Suiter.

Delegate to State Medical Society: Charles H. Glidden.

Members.

George M. Armstrong, West Winfield	Chas. H. Glidden, Little Falls
F. M. Barney, Dolgeville	H. H. Greene, Pain's Hollow
W. J. Brady, Little Falls	Frederic J. Harter, Herkimer
M. W. Brown, Cedarville	Wm. E. Hays, Frankfort
W. W. Budlong, Frankfort	J. B. Holcomb, Newport
F. R. Calkins, Dolgeville	Ward E. Hunt, Little Falls
J. E. Casey, Mohawk	Stephen A. Ingham, Little Falls
H. J. Christman, Columbia	Cyrus Kay, Jr., Herkimer
Fred E. Comstock, Ilion	G. N. Lehr, Frankfort
O. H. Deck, Herkimer	Miles Longshore, Cold Brook
D. M. Devendorf, Herkimer	Adam Miller, Jordanville
Lyman C. Dexter, Newport	S. R. Millington, Poland
A. J. Douglass, Ilion	A. A. Moors, West Winfield
A. O. Douglass, Little Falls	Irving O. Nellis, Herkimer
Edgar H. Douglas, Little Falls	C. W. Nichols, Fairfield
E. M. Draper, Ilion	Wm. H. H. Parkhurst, Frankfort
F. E. Easton, Van Hornesville	Peter Pryne, Herkimer
I. S. Edsall, Middleville	George P. Rasback, Mohawk
John B. Ellis, Little Falls	James I. Rasbach, Ilion
George S. Eveleth, Little Falls	S. S. Richards, Frankfort
J. D. Fitch, Mohawk	A. B. Santry, Little Falls
George Graves, Herkimer	John H. Shaper, Herkimer
Wm. D. Garlock, Little Falls	John P. Sharer, Little Falls

John H. Stephens, West Winfield
C. G. Strobel, Dolgeville
A. Walter Suiter, Herkimer
Edgar C. Swift, Jordanville
William Tibbitts, Newville
C. B. Trafford, Middleville

D. P. Van Court, Mohawk
Robert W. Warner, Ilion
U. Grant Williams, Newport
Wm. B. Woodhull, Poland
John D. Young, Starkville
Number of Members, 57.

Deceased : C. W. Hamlin, October 7, 1897, æt. 58.

MEDICAL SOCIETY OF THE COUNTY OF JEFFERSON.

MEETINGS.—Annual, second Tuesday in January ; semi-annual, second Tuesday in July ; quarterly, second Tuesday in April and October.

Officers. (January, 1898.)

W. A. Vincent, *President*.
E. S. Willard, *Secretary*.

J. M. Crowe, Jr., *Vice-President*.
C. M. Rexford, *Treasurer*.

Censors : W. R. Sturtevant,
G. G. Sabin,

I. M. Meader, J. A. Barnette,
E. A. Chapman.

Business Committee : C. N. Bibbins, J. M. Crowe, E. S. Willard.

Delegates to State Medical Society : G. H. Wood, O. C. Eastman.

Members.

C. F. Adams, Carthage
Fred C. Bailey, Adams Centre
Wm. C. Bailey, Adams Centre
J. A. Barnette, Watertown
C. N. Bibbins, Watertown
H. D. Bingle, Carthage
A. J. Boyd, Watertown
Wallace N. Brown, Watertown
R. J. F. Burton, Depauville
G. Cannon, Watertown
C. A. Catlin, Redwood
E. A. Chapman, Belleville
B. C. Cheesman, Watertown
Robert Clink, Redwood
T. F. Connolly, Watertown
J. M. Crowe, Watertown
J. M. Crowe, Jr., Watertown
Eugene M. Crabb, Cape Vincent
F. T. Dale, Lafargeville
H. H. Deane, Watertown
A. J. Dick, Watertown
C. S. Drury, Natural Bridge
Charles Douglas, Deter
O. C. Eastman, Watertown
E. E. Eddy, Redwood
W. C. Fawdry, Lorraine
J. T. Fowkes, Lafargeville
G. A. Foote, Dexter
S. W. Frame, Belleville
S. V. Frame, Clayton
Geo. F. Gardiner, Pierrepont Manor
L. E. Gardner, Black River
A. A. Getman, Chaumont
A. W. Goodale, Watertown

Alfred Goss, Adams
J. C. Graham, Philadelphia
Thomas R. Hossie, Gouverneur
H. A. Hoyt, Watertown
M. J. Hutchins, Redwood
G. H. Ives, Watertown
H. W. Jewett, Chaumont
Edward F. Johnson, Felts Mills
P. H. Johnson, Adams
J. E. Jones, Evans Mills
Albert A. Joslin, Watertown
Wm. J. Kellow, Watertown
James E. Kelsey, Theresa
C. C. Kimball, Watertown
H. L. Ladd, Sacket Harbor
M. S. Lord, Sacket Harbor
Sheldon D. Lord, Sacket Harbor
James F. McLaw, Watertown
E. R. McCreary, Watertown
Lois F. Mansfield, Watertown
Thomas Masson, Cape Vincent
F. W. H. Massey, Brownville
Isabel M. Meader, Watertown
S. L. Merrill, Carthage
A. L. Morgan, Dexter
Charles Parker, Three-Mile Bay
John Pierce, Adams
H. C. Potter, Mannsville
C. M. Rexford, Watertown
DeWitt C. Rodenhurst, Philadelphia
George G. Sabin, Watertown
E. J. Severance, Lorraine
Florence A. Sherman, Watertown
W. H. H. Silas, Ellis Village

F. B. Smith, Watertown
 H. H. Smith, Watertown
 J. Monroe Smith, Watertown
 M. L. Smith, Watertown
 H. L. Smith, Rodman
 Gordon P. Spencer, Watertown
 H. G. P. Spencer, Watertown
 James D. Spencer, Watertown
 A. B. Stevens, Watertown
 Harold B. Stowel, Watertown
 O. O. Stowell, Watertown
 J. R. Sturtevant, Theresa
 George E. Sylvester, Black River

J. M. Tamblin, Copenhagen
 Etson W. Teepell, Watertown
 W. G. Terry, Henderson
 A. S. Thompson, Ellis Village
 E. W. Trowbridge, Watertown
 W. A. Vincent, Three-Mile Bay
 E. E. Ward, Pamela Four Corners
 Ervin W. Witt, Brownville
 J. A. Wood, Plessis
 G. H. Wood, Antwerp
 E. S. Willard, Watertown

Number of Members, 98.

Deceased: N. D. Ferguson, Carthage, July 4, 1897; N. P. Joyner, Clayton.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

MEETINGS.—Annual, third Tuesday in January; stated meeting, third Tuesday of other months; all meetings are held in Brooklyn, at 356 Bridge street, the permanent home of the Society. A "Journal and Reading Room" is open daily (except Sundays) from 10 A.M. to 10 P.M.; over two hundred journals are regularly on file. The library has recently been improved by the addition of several valuable works of reference and the best of the new medical monographs and text-books, and now contains more than 10,000 books and pamphlets. This Society also owns and publishes monthly *The Brooklyn Medical Journal*, which has now about 2000 subscribers.

Officers. (January, 1898.)

Joseph Hunt, <i>President.</i>	E. H. Bartley, <i>Vice-President.</i>
David Myerle, <i>Secretary.</i>	R. J. Morrison, <i>Assistant Secretary.</i>
Chas. N. Cox, <i>Treasurer.</i>	O. A. Gordon, <i>Assistant Treasurer.</i>
Wm. Browning, <i>Librarian.</i>	

Censors: H. A. Fairbairn, J. L. Cortright, H. B. De Latour.
 J. M. Van Cott, J. M. Winfield.

Delegates to State Medical Society.

H. A. Alderton,	H. P. de Forest,	William Schroeder,
A. C. Bunn,	G. R. Hall,	Peter Scott,
William C. Braislín,	H. T. Hotchkiss,	F. J. Shoop,
Arthur C. Brush,	S. J. McNamara	Wm. Simmons,
W. F. Campbell,	H. R. Price,	J. P. Warbasse,
J. M. Clayland,	John Rankin,	Wm. Waterworth,
Z. F. Dunning,	Victor Robertson,	Herbert F. Williams.

Members.

(Where no town is mentioned, Brooklyn is to be understood.)

Henry F. Adams, 9 Palmetto st	Belle V. Aldridge, 32 Division st
Louis C. Ager, Ovington and Fourth avs	L. A. W. Alleman, 64 Montague st
Martin Amador, 187 Park av	W. S. Applegate, 936 Flatbush av
Alfred S. Ambler, Kingston Avenue Hospital	A. Arbona, 122 Pennsylvania av
Louis N. Anderson, 149 Taylor st	H. L. Armstrong, 775 De Kalb av
S. Anderson, 759 Union st	H. Arrowsmith, 32 Schermerhorn st
A. J. Andrews, 33 Montgomery pl	J. G. Atkinson, 287 Clermont av
H. A. Alderton, 138 Clinton st	Ira Ayer, Cropsey av and 23d st
	Benj. Ayers, 213 Jefferson av
	E. H. Babcock, 140 Remsen st

- Fred. D. Bailey, 260 Hancock st
 Frank Baldwin, 691 Willoughby av
 L. G. Baldwin, 28 Schermerhorn st
 Calvin Barber, 57 S. Oxford st
 Homer L. Bartlett, 24 Fenmore st
 E. H. Bartley, 21 Lafayette av
 F. E. Bass, 33 St. Felix st
 W. H. Bates, 137 Clinton st
 H. B. Bayles, 125 Seventh av
 Crawford D. Beasley, 206 Green av
 Nathan T. Beers, 196 New York av
 William N. Belcher, 25 S. Portland av
 Alfred Bell, 287 Irving av
 Chas. N. Bellows, 442 Nostrand av
 Herman Bender, 683 Bushwick av
 Franklin Bennett, 686 Greene av
 W. H. Bennett, 837 President st
 Stuart H. Benton, 1063 Bergen st
 W. A. Berendsohn, 442 Bergen st
 P. H. Berlinbach, 9 Stuyvesant av
 E. S. Bishop, 919 Bedford av
 Henry M. Bishop, 338 Ninth st
 R. A. Black, 106 Johnson st
 Silas C. Blaisdell, 225 Roebling st
 B. F. Blake, 35 Schermerhorn st
 J. A. Blake, 332 Jefferson av
 H. D. Bliss, 97 Halsey st
 D. G. Bodkin, 290 Clinton av
 M. L. Bodkin, 86 Sands st
 Wm. Boes, 2 Broome st
 P. A. Boetzkes, 820 Bay Parkway
 A. H. Bogart, 139 7th av
 J. B. Bogart, 423 Washington av
 Seth D. Boggs, 369 Tompkins av
 G. Boucher, 229 Union st
 Jas. J. Bowen, 782 Hancock st
 F. W. Bowron, 259 Tompkins av
 W. P. Bowser, 506 Ninth st
 Frank E. Boyden, 622 Marcy av
 J. F. Boynton, Canarsie
 Wm. C. Braislín, 217 St. James pl
 R. Brewster, 126 Lefferts pl
 B. M. Briggs, Willoughby and Duffield sts
 A. Brinkman, 176 Bergen st
 W. B. Brinsmade, 123 Joralemon st
 A. T. Bristow, 234 Clinton st
 Anna M. Brown, 133 Halsey st
 Lucy Hall Brown, 158 Montague st
 S. S. Brown, 844 Lafayette av
 Wm. Browning, 54 Lefferts pl
 Wm. W. Browning, 155 Reid av
 A. H. Brundage, 1153 Gates av
 C. W. Brunner, 103 Wilson st
 Arthur C. Bush, 11 Lafayette av
 Geo. W. Brush, 2 Spencer pl
 Harold F. Brynn, 598 Henry st
 Thomas M. Buckley, 771 Union st
 H. Bullwinkle, 196 Washington st
 H. A. Bunker, 183 Sixth av
 A. C. Bunn, St. John's Hospital
 J. H. H. Burge, 132 Montague st
 P. V. Burnett, 170 Keap st
 Chas. R. Butler, 161 Halsey st
 Glentworth R. Butler, 229 Gates av
 W. E. Butler, 113 Halsey st
 John Byrne, 314 Clinton st
 E. N. B. Bystrom, 147 Warren st
 H. de H. Cameron, 262 Seventh av
 W. F. Campbell, 127 Lafayette av
 P. Candidus, 226 S. Ninth st
 J. C. Cardwell, 475 Halsey st
 James L. Carney, 243 Sixth av
 E. J. Carolan, 946 Bedford av
 A. W. Catlin, 207 Greene av
 W. L. Chapman, 518 Monroe st
 Walter B. Chase, 291 Hancock st
 E. S. Chick, 303 Greene av
 Edward M. Child, 1495 Pacific st
 S. B. Childs, 498 Classon av
 S. Church, 236 Clinton st
 Chas. E. Clark, 239 Lorimer st
 F. H. Clark, 690 Greene av
 Raymond Clark, Methodist Episcopal Hospital
 Joseph E. Clark, 396 4th st
 J. M. Clayland, 466 Hart st
 H. L. Cochran, 141 Clinton st
 Lawrence Coffin, 473 Bedford av
 Michael A. Cohn, 470 Watkins st
 Geo. W. Colby, 142 Putnam av
 F. H. Colton, 136 Montague st
 Burnett C. Collins, 1263 Dean st
 J. T. Conkling, 143 Remsen st
 Henry Conkling, 143 Remsen st
 C. D. Cook, 162 Remsen st
 R. C. F. Coombs, 93 Hancock st
 W. J. Corcoran, 301 Clinton st
 Lawrence J. Cordona, 833a Lafayette av
 E. E. Cornwall, 146 Herkimer st
 Robert E. Coughlin, 237 Forty-seventh st
 J. H. Coverly, 191 Washington Park
 Chas. N. Cox, 257 Jefferson av
 Thomas Craig, 244 Cumberland st
 E. P. Crowell, 409 Jefferson av
 W. J. Cruikshank, 102 Fort Green pl
 Albert M. Curry, 493 Classon av
 Geo. W. Cushing, 321 Schermerhorn st
 W. H. Davis, 289 Decatur st
 A. A. Day, 659 Putnam av
 W. V. Dee, 290 Bridge st
 Jos. F. De Castro, 357a Clinton st
 H. P. DeForest, 369 Hancock st
 P. H. DeGregori, 335 Lorimer st
 H. B. De Latour, 73 Eighth av

W. De Long, 283 S. Second st
 F. C. De Mund, 22d st and New
 Utrecht av
 D. De Waltoff, 297 Forty-seventh st
 Chas. A. H. DeSzigethy, 157 Clin-
 ton st
 John G. Dickert, 233 Bushwick av
 Robert L. Dickinson, 145 Clinton st
 G. J. Dirkes, 746 Driggs av
 Herbert S. Dixon, Lewis av and
 Kosciusko st
 Thomas Dixon, 92 Sands st
 Clarence L. Dodge, 651 Macon st
 Chas. E. Dority, 411 Union st
 A. J. Dower, 380 Union st
 Jos. M. Doyle, 89th st and Second av
 Geo. Drury, 113 Johnson st
 L. M. Dusseldorf, 392 Union st
 J. T. Duryea, 6 Caton av
 W. F. Dudley, 147 Clinton st
 Z. T. Dunning, 488 Arlington av
 Adolph W. Dunbar, 230 Carroll st
 R. G. Eccles, 191 Dean st
 Ben. Edson, 83 St. Mark's av
 C. E. Elfstrom, 489 Atlantic av
 Robt. M. Elliot, L. I. State Hospital
 E. Eltinge, 2 Verona pl
 Oscar Embden, 184 State st
 Florence G. Emerson, 140 Wilson st
 Z. Taylor Emery, 481 Washington av
 George Esig, 488 Bedford av
 Geo. A. Evans, 909 Bedford av
 H. A. Fairbairn, 249 McDonough st
 J. N. Farrar, 1271 Broadway, N. Y.
 Edw. E. Ferris, 227 Thirty-third st
 Geo. N. Ferris, 910 Flatbush av
 M. Figuera, 12 Stuyvesant av
 W. Y. Finch, 479 Bergen st
 Albert Fitch, 1152 Putnam av
 Frank J. Fitzgerald, 516 6th av
 J. C. Fitzsimmons, 433 Gold st
 James W. Fleming, 471 Bedford av
 Leon M. Fleming, 334 Jay st
 Thos. L. Fogarty, 230 Union st
 Lewis N. Foote, 523 Willoughby av
 Clarendon A. Foster, 842 Prospect pl
 C. B. Fowler, 273 6th av
 Geo. Ryerson Fowler, 302 Washing-
 ton av
 Russell S. Fowler, 388 Lafayette av
 H. E. Frazer, 29 Lafayette av
 Thos. R. French, 150 Joralemon st
 T. Frickenstein, 110 Union av
 Otto G. Frischbier, 185 Staggt st
 Wm. M. Friend, 404 Clinton st
 Wm. A. Fries, 184 Forty-seventh st
 J. Fuhs, 286 Jefferson st
 F. V. C. Fuller, 110 St. James pl
 Jas. T. Gallagher, 447 Lafayette av

W. E. Gardiner, 173 Sixth av
 Sidney A. Gardiner, 1085 Gates av
 Chas. Gartner, 257 Humboldt st
 John T. Gibbons, 1297 Bushwick av
 H. L. Gifford, 214 S. Fourth st
 C. P. Gildersleeve, 38 Schermerhorn st
 Wm. Gilfillan, 98 Remsen st
 W. J. Gilfillan, 79 Main st
 Elizabeth C. Gilkinson, 62 Hoyt st
 H. L. Gill, 279 Dean st
 Thomas C. Giroux, 142 S. Fourth st
 J. W. W. Glynn, 71 First pl
 J. F. Golding, 363 Franklin av
 Chas. H. Goodrich, 673 Vanderbilt av
 O. A. Gordon, 666 Greene av
 Robert Graham, 74 Rush st
 G. P. Griffing, 597 Lorimer st
 W. A. Griffith, 669 Willoughby av
 H. L. Grover, 847 Quincy st
 C. E. Gunther, 151 Clinton st
 Gordon R. Hall, 26 Schermerhorn st
 Cyrus Hamlin, 166 Putnam av
 J. C. Hancock, 43 Cambridge pl
 John Harrigan, 401 Clinton st
 Burt D. Harrington, 38 Lenox Road
 J. M. Harcourt, 305 Clinton st
 D. A. Harrison, 142 Clinton st
 Audley Haslett, 115 Clinton st
 Edwin A. Hatch, 823 De Kalb av
 Geo. R. Hawley, 291 Gates av
 W. H. Haynes, 401 Bainbridge st
 T. B. Hegemann, Newkirk av and E.
 26th st
 Skidmore Hendrickson, 1275 Ber-
 gen st
 J. W. Henry, 232 Macon st
 C. C. Henry, 56 Clark st
 Chas. T. Hepp, 398 Graham av
 A. H. Heppner, 436 Henry st
 C. J. Hetteshimer, 313 Wyckoff av
 W. B. Hewitt, 227 Clermont av
 E. P. Hickok, 114 Pennsylvania av
 J. O. F. Hill, Neptune av., Coney
 Island
 C. N. Hoagland, 410 Clinton av
 Edward Hodges, St. John's Hospital
 —Hoffmann, 483 9th st
 F. C. Holden, 34 Plaza st
 John M. Holt, 308 Macon st
 D. C. Holton, 601 Leonard st
 H. N. Hoople, 33 Kingsland av
 Geo. G. Hopkins, 350 Washington av
 H. T. Hotchkiss, 520 Gates av
 E. H. Hoxie, 1 Hart st
 W. S. Hubbard, 162 Putnam av
 W. B. Huestis, Flatbush
 Jos. H. Hunt, 1085 Bedford av
 H. M. Hufnagel, 82½ Vanderbilt av
 Alex. Hutchins, 796 De Kalb av

- W. M. Hutchinson, 207 Clinton st
 Clarence R. Hyde, 215 Schermerhorn st
 Joel W. Hyde, 215 Schermerhorn st
 Jas. W. Ingalls, 848 Lafayette av
 Mary de B. Ingram, 196 Joralemon st
 Robt. T. Ives, 22d av and 85th st
 Arthur C. Jacobson, 118 Johnson st
 P. C. Jameson, 105 Montague st
 J. A. Jenkins, 271 Jefferson av
 Charles Jewett, 330 Clinton av
 Fred. A. Jewett, 282 Hancock st
 Oswald Joerg, 12 Schermerhorn st
 C. H. Johnson, 209 Greene av
 J. G. Johnson, 153 Joralemon st
 Florence L. Jones, 508 Third st
 Albert M. Judd, 95 Sixth av
 Jos. A. Kene, 169 Willoughby av
 J. C. Kennedy, 762 Willoughby av
 F. S. Kennedy, 492 Greene av
 C. D. Kevin, 771 Monroe st
 J. R. Kevin, 252 Gates av
 F. P. Keyes, 83 Hanson pl
 J. J. Keyes, 226 Seventeenth st
 P. E. Kidd, 173 Willoughby av
 J. J. Kindred, 1036 Bedford av
 James S. King, 146 McDonough st
 Samuel T. King, 34 Greene av
 W. J. Kinne, 46 Fourth av
 Chas. G. Koehler, 313 S. Fifth st
 W. F. Koerner, 154 Rodney st
 Hugo Koethe, 732 Flushing av
 F. S. Kolle, 701 Fourth av
 J. L. Kortright, 252 Rodney st
 Edw. C. Kroos, 151 Rodney st
 Geo. B. Kuhn, 122 Clinton av
 L. de B. Kuhn, 471 Willoughby av
 C. Eugene Lack, 450 Ninth st
 W. W. Laing, 342 Putnam av
 W. B. Lane, 395 Washington av
 J. E. Langstaff, 19 Seventh av
 L. G. Langstaff, 19 Seventh av
 Leon Lauria, 255 Hewes st
 A. W. Lawrence, 203 Bedford av
 Caroline F. Le Fevre, 665 St. Mark's av
 A. S. Leonard, 181 McDonough st
 J. C. Lester, 179 Schermerhorn st
 Max Levy, 74 McKibben st
 E. A. Lewis, 102 Pierrepont st
 Maurice T. Lewis, 414 Fifty-fifth st
 H. W. Lincoln, 115 Hancock st
 Martin Lindroth, 50 Greene av
 Frank Little, 114 Montague st
 Wm. A. Little, 923 Bedford av
 T. M. Lloyd, 125 Pierrepont st
 Jacob Long, 336 Marcy av
 D. F. Lucas, 352 Pacific st
 Stephen H. Lutz, 598 Madison st
 J. L. Macumber, Bedford and Lafayette aves
 Geo. F. Maddock, 550 Macon st
 Wm. Maddren, 1 Hanson pl
 L. A. P. Magilligan, 56 Berkeley pl
 H. R. Maine, 24 Seventh av
 Augustine J. Malloy, 129 William st
 J. W. Malone, 22d st and Cropsey av
 Mark Manley, 261 Monroe st
 E. R. Mars, 33 St. Felix st
 E. Frank Marsh, 470 Ninth st
 J. H. Marshall, 536 Monroe st
 L. D. Mason, 171 Joralemon st
 A. Ross Matheson, 37 Seventh av
 Sewell Matheson, 578 Bergen st
 H. C. Mathews, 894 Quincy st
 Arthur Mathewson, 139 Montague st
 J. B. Mattison, 188 Prospect pl
 Nathaniel Matson, 415 Greene av
 John B. Maury, 6 Stuyvesant av
 E. H. Mayne, Bath and Eighteenth aves
 Thos. F. McCleary, 915 Bedford av
 L. A. McClellan, 78 McDonough st
 John A. McCorkle, 149 Clinton st
 J. C. McEvitt, 407 Clinton st
 J. M. McEvitt, 45 Third pl
 F. J. McGilligan, 135 Bergen st
 C. F. McGuire, 503 Clinton st
 H. C. McLean, 101 Sixth av
 John A. McLeod, 669 Leonard st
 Jas. McManus, 274 Ninth st
 S. J. McNamara, 325 Union st
 Geo. McNaughton, 1 Cambridge pl
 L. C. McPhail, 161 Hicks st
 J. P. McQuillan, 224 53d st
 R. M. Mead, 337 Union st
 J. A. Meara, 4 Lafayette av
 G. Merola, 25 Second pl
 Frank D. Merritt, 689 Lafayette av
 John Merritt, 842 President st
 Jos. Merzbach, 446 Pacific st
 Henry H. Morton, 40 Schermerhorn st
 L. E. Meeker, 1130 Brunswick av
 D. W. Meyer, 44 Clinton st
 A. G. Meyerburg, 102 Bradford st
 Frank S. Milbury, 215 Jefferson av
 F. P. Miller, 232 Stuyvesant av
 F. H. Miller, 39 Pennsylvania av
 L. H. Miller, 14 Spencer pl
 W. F. Millington, 356 Ninth st
 E. J. Minard, 243 Quincy st
 Wm. Moitrier, 46 Stagg st
 Chas. G. Molin, 134 State st
 S. H. Monell, 865 Union st
 Robt. J. Morrison, 354 Tompkins av
 L. J. Morton, 303 Henry st
 Burr B. Mosher, 202 Schermerhorn st
 Carl Mueller, 132 Ewen st

H. F. C. Muller, 315 President st
G. Morgan Muren, 74 Sands st
Archibald Murray, 128 Willow st
David Myerle, 572 Bedford av
C. D. Napier, 475 Franklin av
W. Neuss, 248 Central av
F. N. Newman, 167 Hancock st
L. M. Nickerson, 89 S. Ninth st
Hayden Nichols, 289 Baltic st
H. W. Nichols, Kings County Hos-
pital

Lewis L. Nichols, 340 Stuyvesant av
N. L. North, 627 Bedford av
N. L. North, Jr., 118 Hooper st
T. H. Northridge, 320 Cumberland st
W. A. Northridge, 21 Hanson pl
Henry Noss, 328 Jay st
J. F. O'Connell, 159 Remsen st
Burdette O'Conner, 149 Clinton st
J. O'Grady, 130 Sands st
Chas. A. Olcott, 498 Bedford av
Robt. Ormiston, 117 S. Elliott pl
John H. O'Neill, 897 Kent av
Geo. A. Ostrander, 61 Greene av
William C. Otterson, 144 Pierrepont
st

K. Rose Owen, 145 S. 5th st
May R. Owen, 155 South 4th st
E. D. Page, 297 De Kalb av
A. R. Paine, 99 Lafayette av
Ernest Palmer, 155 Clinton st
Geo. H. Parshall, 173 Fifty-third st
J. M. Peacock, 257a Madison st
Eugene F. Pearce, 95 Henry st
L. W. Pearson, 401 Union st
A. E. Peck, 356 State st
H. T. Peck, 126 Van Buren st
Francis Peele, 196 Joralemon st
Arthur Pell, 1265 Dean st
W. J. Pennington, 85 S. 9th st
Chas. P. Peterman, 911 Greene av
H. S. Petit, 132 St. James pl
Stephen C. Petit, Kings County Hos-
pital

W. H. Philleo, 179 Herkimer st
G. H. Pierce, 76 St. James pl
Lewis S. Pilcher, 145 Gates av
J. O. Polak, 23 Seventh av
Ralph C. Pomeroy, 511 Nostrand av
W. P. Poole, 13 St. James pl
H. F. Praeger, 180a Vernon av
W. H. B. Pratt, 94 Sixth av
S. R. Pray, 191 S. Fifth st
P. J. Prendergast, 531 Henry st
H. R. Price, 485 Franklin av
J. S. Prout, 26 Schermerhorn st
J. W. Purdy, 379 Third st
Paul F. Pyburn, 600 Franklin st
Marion Pyles, 31 Madison st

Med N Y

J. R. Quinn, 314 Greene av
Alexander Rae, 117 Henry st
John Rankin, 302 Sumner av
W. H. Rankin, 370 Tompkins av
J. C. Rappold, Jr., 760 Bushwick av
J. C. Rappold 750 Flushing av
Leo Ratner, Belmont av and Wat-
kins st
J. M. Raub, 295 Clinton st
J. H. Raymond, 157 Columbia
Heights

Henry N. Read, 339 Clinton st
G. E. Reed, 737 Putnam av
Edwin Reynolds, 129 Lafayette av
J. E. Richardson, 120 S. Oxford st
W. L. Rickard, 262 Stuyvesant av
Laura Riegelmann, 172 South 3d av
Herman C. Riggs, 117 Montague st
H. F. W. Risch, 521 Third st
O. E. F. Risch, 521 Third st
A. H. Ritter, 262 Hewes st
V. A. Robertson, 777a Union st
W. S. Robbins, 57th st bet. 12th and
13th avs

James W. E. Roby, 516 Bedford av
J. M. Rochester, 2 St. James pl
William H. Roe, 358 Putnam av
H. C. Rogers, 377 Gates av
A. J. Rooney, 226 Seventeenth st
F. H. Ross, 278 Bridge st
Anna F. Rowe, 133 E. Thirty-
eighth st, N. Y.

R. S. Royce, 211 Greene av
J. W. Russell, 368 Adelphi st
J. H. E. Sands, 703 Fourth av
S. Santoire, 148 Clinton st
C. T. Sauer, 390a Fifth st
Adam Schauf, 198 Vernon av
H. L. Schelling, 841 Willoughby av
P. L. Schenck, 95 Sixth av
Tunis Schenck, 19th av and 83d st
W. C. Schirmer, 574 Franklin av
C. B. Schlatter, 158 Seventeenth st
F. H. Schlitz, 28 Jefferson st
G. Schmetzer, 734 Flushing av
J. A. Schmidt, 1195 Dean st
W. C. J. Schmidt, 645 Park av
Geo. Schmitt, 108 Suydam st
R. Schrimgeour, 752 Carroll st
Wm. Schroeder, 339 President st
W. C. Schoenijahn, 207 Sixth av
Peter Scott, 128 Reid av
A. H. Schwab, 690 Bushwick av
W. A. Seimel, 243 Lorimer st
W. H. Seymour, 233 Clinton st
F. M. Sharpe, 134 S. Oxford st
W. S. Shattuck, Jr., 147 Remsen st
J. C. Shaw, 226 Henry st
Richard E. Shaw, 139 Pacific st

- Frank W. Shaw, 327 Greene av
 C. H. Shepard, 81 Columbia Heights
 W. H. Shepard, 202 Thirty-second st
 A. W. Shephard, 126 Willoughby st
 John E. Sheppard, 135 Clinton st
 W. Sherman, 336 Ninth st
 Samuel Sherwell, 33 Schermerhorn st
 Fred. J. Shoop, 146 S. Portland av
 Ferdinand Siegel, 205 Bedford av
 H. S. Shlevin, 161 N. Sixth st
 Wm. Simmons, 173 Remsen st
 W. S. Simmons, Jr., 338 Lafayette av
 John F. Simpson, 450 Graham av
 Alex. J. C. Skene, 167 Clinton st
 W. H. Skene, 143 Clinton st
 Samuel H. Slote, 59 Leonard st
 Evan F. Smith, 177 Putnam av
 Frank E. Smith, L. I. State Hospital
 H. M. Smith, 64 Montague st
 I. B. Smith, 571 Lorimer st
 Jos. E. Smith, 92 Lee av
 J. Wheeler Smith, 1120 Herkimer st
 W. H. Snyder, 139 Montague st
 J. A. Somers, 3 Lafayette av
 Agnes Sparks, 140 S. Portland av
 H. Burnett Speer, 728 Carroll st
 Thos. B. Spence, 684 Macon st
 M. Staebler, 690 Macon st
 W. H. Steers, 527 Franklin av
 Carl H. C. Steinke, 220 Seventeenth st
 J. H. Sterling, 225 Schermerhorn st
 Chas. W. Stickle, 52d st and 13th av
 John R. Stivers, 143 Lefferts pl
 R. H. Stone, 178 Jay st
 Wm. E. Stratton, 195 Berkeley pl
 Francis H. Stuart, 123 Joralemon st
 Arnold Stub, 174 Schermerhorn st
 Purdy H. Sturgis, 145 Seventh av
 J. D. Sullivan, 74 McDonough st
 R. H. Sullivan, 584 Franklin av
 W. E. Sullivan, 480 Henry st
 W. F. Swalm, 118 Lafayette av
 W. E. Sylvester, Kings County Asylum
 J. J. Terhune, 169 Adelphi st
 C. H. Terry, 540 Washington av
 Jerome B. Thomas, 32 Schermerhorn st
 Wm. E. Thomas, 46 Hanson pl
 G. G. Thompson, St. Johns pl
 J. C. Thoms, 1260 Herkimer st
 L. E. Tieste, 6 Lafayette av
 Joseph E. Todd, Kings County Hospital
 W. A. Thomes, 500 Classon av
 T. W. Topham, 354 Schermerhorn st
 Palmer Townsend, 256 Putnam av
 Ira O. Tracy, Kings County Hospital
 Alonzo S. Treadwell, 107 McDonough st
 G. H. Treadwell, 64 S. Portland av
 S. P. Truex, 283 Franklin av
 Walter Truslow, 168 Clinton st
 H. A. Tucker, Jr., 393 Clinton st
 H. C. Turner, 412a Clinton st
 W. J. Turner, 150 Schermerhorn st
 H. R. Tuthill, 83 Monroe st
 J. Y. Tuthill, 100 Fort Greene pl
 J. M. Van Cott, 188 Henry st
 John Von Glahn, 49 Sands st
 Geo. Wackerhagen, 326 Schermerhorn st
 H. A. Wade, Nostrand av near Myrtle
 J. D. Wade, 252 S. Ninth st
 John E. Wade, 908 Greene av
 Henry Wallace, 183 Congress av
 J. E. Walsh, 633 Tenth st
 J. P. Warbasse, 109 Gates av
 Horace S. Warner, 109 Gates av
 Horace S. Warner, 372 Lewis av
 D. E. Warren, Kings County Asylum
 J. S. Waterman, 520 Nostrand av
 Wm. Waterworth, 3 Hancock st
 Henry S. H. Waugh, 38 Schermerhorn st
 D. W. Waugh, 388 Clinton st
 A. A. Webster, 165 N. Sixth st
 Adolph Weber, 181 S. Fifth st
 Henry G. Webster, 90 Halsey st
 Wm. C. Weeks, 99 N. Portland av
 Frederick Weisbrod, 9 Lewis av
 J. E. Welles, 410 Clinton st
 Thos. L. Wells, 943 St. Mark's av
 R. B. Welton, 513 Henry st
 G. W. Welty, 500 Clinton st
 Frank E. West, 29 Schermerhorn st
 Geo. E. West, 719 Macon st
 Geo. R. Westbrook, 175 Schermerhorn st
 R. W. Westbrook, 1265 Bedford av
 F. Weygandt, 645 Bedford av
 T. H. Wheatley, 151 Hewes st
 E. A. Wheeler, 110 Rose st
 R. T. Wheeler, 210 Lee av
 Morris G. White, 119 Gates av
 L. A. Whitehouse, Franklin and Gates aves
 J. S. Wight, 30 Schermerhorn st
 J. S. Wight, Jr., Long Island County Hospital
 Thomas Wilde, 121 Seventh av
 Geo. A. Williams, 449 Hancock st
 Herbert F. Williams, 197 Gates av
 Chas. S. Williamson, 290 Halsey st
 Royal H. Willis, 14 McDonough st
 Ezra H. Wilson, 194 Keap st
 F. E. Wilson, 1242 Bushwick av
 J. M. Winfield, 1273 Bedford av

Fred. G. Winter, 18 Patchen av	F. W. Wunderlich, 165 Remsen st
F. J. Wood, 299 De Kalb av	E. G. Zabriskie, 878 Flatbush av
John S. Wood, 107 Sixth av	J. B. Zabriskie, Church av near
Walter C. Wood, 80 Halsey st	Flatbush av
Lawrence S. Woodhull, 46 Monroe pl	Chas. Zellhoffer, 175 S. Fourth st
James B. Worden, 253 De Kalb av	
E. W. Wright, 115 Montague st	Number of Members, 583.

MEDICAL SOCIETY OF THE COUNTY OF LEWIS.

(Organized January 8, 1861.)

MEETINGS.—Annual, first Tuesday in June; semi-annual, first Tuesday in December; quarterly, fourth Tuesday in March and September.

Officers.

S. H. Murphy, <i>President.</i>	P. H. von Zierolshofen, <i>Vice-President.</i>
W. O. Hubbard, <i>Secretary.</i>	J. Z. Hunt, <i>Treasurer.</i>

Delegate to State Medical Society: C. P. Kirley.

Members.

R. H. Ash, Port Lyden	C. P. Kirley, Lowville
F. A. Crane, Lowville	C. H. Merriam, Locust Grove
A. H. Crosby, Lowville	S. H. Murphy, Glendale
Charles E. Douglas, Lowville	D. L. Murray, Croghan
G. P. English, Boonville	W. W. Nelson, Constableville
David Fawdry, Watertown	Laurentine Rouchelle, Croghan
W. O. Hubbard, Lowville	Sarah E. Simonet, Croghan
James Z. Hunt, Lowville	R. A. Stevens, Carthage
W. W. Jamieson, Syracuse	O. O. Stowell, Watertown
W. H. Johnson, Port Lyden	P. H. Zierolshofen, Croghan
F. E. Jones, Beaver Falls	
Albert A. Joslin, Watertown	Number of Members, 22.

MEDICAL SOCIETY OF THE COUNTY OF LIVINGSTON.

(Organized June, 1806.)

MEETINGS.—Annual, second Tuesday in June; semi-annual, second Tuesday in December.

Officers.

F. J. Bowen, <i>President.</i>	G. M. Squires, <i>Vice-President.</i>
E. C. Perry, <i>Secretary.</i>	G. G. Jones, <i>Treasurer.</i>

<i>Censors:</i> J. P. Brown,	W. K. McGowan,	F. H. Moyer,
Edward C. Perry,	C. H. Richmond.	

Delegate to State Medical Society: F. R. Driesbach.

Members.

J. C. Allen, Avon	I. A. M. Dyke, York
F. J. Bowen, Tuscorora	J. G. Filkins, York
John P. Brown, Nunda	E. Gillen, Mt. Morris
L. W. Byam, Mumford	Robert W. Greene, Geneseo
L. P. Clarke, Sonyea	Jacob M. Hagey, Mt. Morris
J. E. Crisfield, Dansville	J. A. Jackson, Dansville
John Denton, Restof	James H. Jackson, Dansville
M. E. Dickinson, Dansville	Kate V. Jackson, Dansville
F. B. Dodge, Mt. Morris	G. G. Jones, Geneseo
Fred. R. Driesbach, Dansville	George H. Jones, Fowlerville

B. T. Kneeland, Dalton
 W. E. Lauderdale, Jr., Geneseo
 J. B. Losey, Conesus
 W. K. McGowan, Conesus
 R. J. Mensie, Caledonia
 J. H. Morrisey, Lima
 F. H. Moyer, Moscow
 William Nesbit, Avon
 Charles V. Patchin, Dansville
 F. M. Perine, Dansville

Edward C. Perry, Avon
 John C. Preston, Avon
 C. H. Richmond, Livonia
 G. W. Squires, East Avon
 W. G. Steadman, Rochester
 F. A. Strassenburgh, Lima
 Fred. A. Wicker, Hemlock Lake
 Addison P. Wisner, Scottsburg

Number of Members, 38.

MEDICAL SOCIETY OF THE COUNTY OF MADISON.

(Organized July 29, 1806.)

MEETINGS.—Annual, second Tuesday in May.

Officers. (1897.)

James F. Huntley, *President*. O. S. Langworthy, *Vice-President*.
 F. C. Drake, *Secretary*. Otto Pfaff, *Treasurer*.

Censors: C. H. Perry, I. N. Goff, E. P. Bailey,
 O. W. Burhyte, M. Billington.

Delegate to State Medical Society: J. W. Knapp.

Members.

E. P. Bailey, Oneida
 G. W. Banning, Hamilton
 T. C. Beebe, Erieville
 M. Billington Chittenango
 Gilbert Birdsall, North Brookfield
 N. O. Brooks, Perryville
 H. Clift Brown, Brookfield
 O. W. Burhyte, Brookfield
 E. H. Carpenter, Oneida
 H. W. Carpenter, Oneida
 M. Cavana, Oneida
 D. D. Chase, Morrisville
 C. M. Colegrove, Canastota
 G. W. Davis, Peterboro
 F. E. Dewey, Peterboro
 A. P. Dodge, Oneida
 W. H. Douglas, East Hamilton
 F. C. Drake, Oneida
 J. R. Eaton, Chittenango
 Herman G. Germer, Canastota
 I. N. Goff, Cazenovia
 W. H. Griffith, Munnsville

Horace Halbert, Canastota
 A. N. Haskins, Hubbardsville
 James F. Huntley, Oneida
 M. R. Joy, Cazenovia
 J. W. Knapp, Canastota
 O. S. Langworthy, Hamilton
 Frederick O. Lloyd, Hamilton
 W. T. Lum, Bridgeport
 M. P. Messenger, Clockville
 J. E. McClelland, De Ruyter
 G. W. Miles, Oneida
 Edgar L. Miller, Eaton
 H. P. Mead, Morrisville
 S. P. Moore, Munnsville
 C. H. Perry, Oneida
 Otto Pfaff, Oneida
 — Scott, Bridgeport
 A. D. Smith, New Woodstock
 William Taylor, Canastota
 H. H. White, Earlville
 S. J. Wilson, Oneida

Number of Members, 43.

Deceased: H. S. Crandall, Leonardsville, January, 1898, æt. 80.

MEDICAL SOCIETY OF THE COUNTY OF MONROE.

MEETINGS.—Annual, last Wednesday in May.

Officers. (May, 1898.)

C. S. Starr, *President*. D. G. Mason, *Vice-President*.
 S. W. Little, *Secretary*. W. M. Brown, *Treasurer*.

Delegates to State Medical Society: S. W. Little, F. A. Mandeville,
 C. D. Young, D. G. Mason.

Members.

(Where no town is mentioned Rochester is to be understood.)

- F. D. Andrew, 71 East av
 E. B. Angell, 295 Alexander st
 Azzel Backus, 39 S. Washington st
 Ogden Backus, 5 Granger place
 Evylin Baldwin, 317 West av
 E. P. Ballantine, State Hospital
 C. R. Barber, 149 Hudson st
 W. N. Barron, 79 Frank st
 H. S. Beahan, 343 West av
 James Beahan, 343 West av
 W. D. Becker, 37 N. Fitzhugh st
 H. W. Bode, 323 St. Joseph st
 C. O. Boswell, 389 East av
 J. Brady, 87 Columbia av
 A. N. Braham, Brockport
 John D. Briggs, 43 S. Clinton st
 C. M. Briggs, Fairport
 W. H. Briggs, 105 Columbia av
 W. M. Brown, Brighton
 M. Alice Brownell, Newark
 Kathleen L. Buck, 14 Yale st
 James C. Buckley, 127 E. Main st
 W. H. Bullis, 124 University av
 J. J. A. Burke, 65 East av
 Ina V. Burt, 21 Park av
 Chas. McD. Cameron, 106 Lake av
 A. B. Carpenter, Greece
 H. B. Carpenter, 280 Alexander st
 P. D. Carpenter, Pittsford
 George G. Carroll, 8 Sophia st
 R. L. Carson, 97 East av
 A. C. Cartwright, 82 Ambrose st
 J. W. Casey, 25 Sophia st
 B. S. Coleman, 576 West av
 J. B. Cowles, Fairport
 Morey S. Collier, 1 Boston court
 Charles G. Combs, 185 Monroe av
 C. V. C. Comfort, 38 Savannah st
 W. L. Conklin, 232 South av
 J. A. Cormier, 355 Central av
 Robt. G. Cook, 45 Park av
 H. H. Covell, 96 East av
 Charles S. Craig, Hamlin
 Anna Craig, 50 S. Clinton st
 James F. Crowley, 309 E. & B. Bldg
 J. R. Culkin, 414 Lyell av
 D. F. Curtis, 89 South av
 A. Dann, 406 Granite Building
 C. E. Darrow, 116 East av
 James C. Davis, 8 Chestnut st
 C. A. Dewey, 53 S. Fitzhugh st
 Sarah R. A. Dolly, 52 East av
 Frank F. Dow, 68 Vick Park Crescent
 J. D. Dunning, Webster
 H. S. Durand, 87 S. Fitzhugh st
 Edgar H. Earl, 420 Lyell av
 Frederick East, 399 North st
 W. S. Ely, 78 S. Fitzhugh st
 S. L. Elsner, 83 N. St. Paul st
 G. A. Engert, 43 S. Clinton st
 John J. Evans, 123 Frank st
 W. V. Ewers, 44 North Goodman st
 Porter Farley, 173 Tremont st
 H. M. Fenno, 77 W. Main st
 Jas. H. Finnessey, 375 N. Clinton st
 J. B. Finnecone, Mendon
 G. T. Fisher, 181 N. Clinton st
 Charles Forbes, 289 West av
 G. W. Foster, 19 East av
 George P. French, Prospect st
 Robert T. French, 209 Alexander st
 W. S. Fuller, Fairport
 R. B. Gamble,
 L. T. Gandy, Chili
 Frederick Geare, 158 West av
 Horace Gee, 75 Lexington av
 G. B. Gillett, 11 Meigs st
 F. H. Goddard, 265 Meigs st
 George Goler, East av
 H. C. W. Graham, W. Webster
 Erlo P. Gray, 304 University av
 O. Groves, 39 Central Park
 P. C. Guinan, 390 State st
 A. R. Gumberts, 48 Chatham st
 W. S. Hall, 62 Oxford
 Eugene F. Hamburg, Genesee st,
 near Brooks av
 T. H. Hanbridge, 62 State st
 E. R. Hardenbrook, State Industrial
 School
 E. A. C. Harris, 253 Lake av
 I. E. Harris, 253 Lake av
 D. G. Hastings, 99 Park av
 Sumner Hayward, 84 East av
 A. W. Henckell, 96 Sophia st
 W. J. Herriman, 84 Sophia st
 W. B. Hillman, Greece
 S. A. Holman, North Parma
 B. L. Hovey, 34 N. Fitzhugh st
 E. H. Howard, Rochester State
 Hospital
 W. R. Howard, 392 E. Main st
 W. J. Howe, Scottsville
 H. B. Howell, 778 E. Main st
 Loren W. Howk, 394 West av
 C. A. Huber, 51 Monroe av
 J. M. Ingersoll, 275 Monroe st
 Thomas Jameson, 240 West av
 Ira T. Johnson, 138 Fulton av
 Frank A. Jones, 155 Lake av
 S. C. Jones, 21 East av
 Wm. B. Jones, 213 Lake av

- O. E. Jones, 389 E. Main st
 J. J. Kempe, 14 Grove st
 N. F. Kiefer, 663 N. Clinton st
 H. Koch, 19 Clinton pl
 W. G. Lacy, Scottsville
 W. H. Lakeman, 101 Ravine av
 Geo. A. Lane, St. Mary's Hospital
 E. H. Lapp, 55 Reynolds st
 C. T. La Moore, Rochester State Hospital
 M. E. Leary, 397 West av
 S. H. Linn, 46 av B, Vick Park
 David Little, 162 Plymouth av
 S. W. Little, 162 Plymouth av
 M. L. Lord, 27 Hawthorne st
 C. H. Losey, 20 Phelps av
 M. C. Lyons,
 J. W. McCauley, 349 Monroe av
 J. F. McKay, 42 Wilder st
 J. H. Magill, Fairport
 A. P. Maine, Webster
 F. W. Malone, 332 West av
 F. A. Mandeville, 98 North av
 H. J. Mann, Brockport
 W. B. Mann, Brockport
 G. A. Marion, 180 $\frac{1}{2}$ N. Goodman st
 D. G. Mason, East Henrietta
 M. C. Mason, 195 Lyell av
 F. B. Manard, Brockport
 H. B. Miner, West Mendon
 E. M. Moore, 74 S. Fitzhugh st
 E. M. Moore, Jr., 74 S. Fitzhugh st
 R. M. Moore, 74 S. Fitzhugh st
 T. T. Mooney, 116 Sophia st
 E. W. Mulligan, 290 West av
 W. T. Mulligan, 290 West av
 P. H. Murphy, 95 Lake av
 J. F. Mulherin, Plymouth av
 H. R. Nettleton, 270 Lake av
 T. A. O'Hare, 97 State st
 E. S. Olin, 178 Andrews st
 I. D. Ozmun, 35 S. Clinton st
 John E. Ottaway, Charlotte, N. Y.
 F. Packer, Rochester State Hospital
 A. B. Parker,
 Joseph Pease, Hamlin
 S. Perry, 103 S. Fitzhugh st
 H. C. Phillips, 166 Frank st
 S. A. Pierce, 4 Avondale Park
 Ida May Porter, 347 Monroe av
 E. B. Potter, State Hospital
 M. C. Potter, 62 S. Clinton st
 Ezra B. Pratt, Fairport
 B. I. Preston, 31 Meigs st
 J. Ready, 50 S. Clinton st
 Charles Reitz, Webster
 A. C. Remington, Rochester State Hospital
 Frederic Remington, 275 West av
 A. L. Richmond, Morton
 C. E. Rider, 53 S. Fitzhugh st
 Wheelock Rider, 53 S. Fitzhugh st
 P. E. Rivard, 174 E. Main st
 A. S. Rockwell, 46 Elizabeth st
 John O. Roe, 28 N. Clinton st
 L. W. Rose, 282 Alexander st
 J. L. Roseboom, 628 E. Main st
 Moses Rosenberg, 374 Central av
 T. D. Rupert, Mendon
 Martin Rutherford, 23 Campbell st
 F. H. Sawers, 224 Lake av
 H. Schoonmaker, 235 Lake av
 Justin Schopp, 127 E. Main st
 Q. C. Schuhart, 248 St. Joseph st
 H. T. Sedgwick,
 H. P. Sheldon, 16 State st
 J. F. Sherman, 507 North st
 W. Sibley, 95 Lake av
 Mary J. Slaughter, 33 Chestnut st
 L. E. Slayton, Spencerport
 N. W. Soble, 7 University av
 L. J. Somers, 96 S. Clinton st
 O. T. Stacy, 284 Alexander st
 Wm. Stanton, 12 Gorham st
 J. A. Stapleton, 94 East av
 Mary E. Stark, 10 James st
 D. Starkey, Chili
 C. S. Starr, 95 North st
 R. L. Stoddard, Monroe av
 Peter Stockschlager, 186 South av
 W. W. Strang, 47 Meigs st
 E. V. Stoddard, 68 S. Washington st
 J. H. Sullivan, Charlotte
 J. E. Sutton, Scottsville
 T. O. Tait, Franklin Square
 M. M. Taplin, 77 Monroe av
 D. C. Throop, 136 North av
 Harriet M. Turner, 21 Williams st
 A. W. Thomas, 490 Lydell av
 C. B. W. Thomas, 490 Lydell av
 F. J. Tunmore, 363 N. St. Paul st
 P. G. Udell, Spencerport
 J. C. Urquhart, 56 North st
 C. A. Vanderbeck, 16 Gibbs st
 M. D. VanHoon, Churchville
 L. Allen Walker, 281 West av
 George Waldron, 408 Plymouth st
 Wm. T. Wallace, 17 Hudson st
 John E. Weaver, 385 Monroe av
 Wm. H. Webb, 14 Windsor st
 J. W. Whitbeck, 322 East av
 V. A. Wickens, 289 West av
 E. Whitcomb, 232 E. Main st
 L. A. Wiegel, East av
 C. W. Wilbor, 763 N. St. Paul
 H. T. Williams, 52 Clinton place
 W. W. Williams, N. Parma
 Benjamin Wilson, 139 Lake av

W. D. Wolff, 62 Clinton place
C. D. Wooden, 129 Frank st
Lettie H. Woodruff, 17 Tremont st
Charles D. Young, 31 Caledonia av

F. W. Zimmer, 45 Monroe av
John Zimmer, 46 Rhine st

Number of Members, 231.

Deceased: G. L. Beach, Rochester; John W. Flick, Honeoye Falls; A. M. Carpenter, North Greece, December 17, 1897, æt. 65.

MEDICAL SOCIETY OF THE COUNTY OF MONTGOMERY.

(Organized July, 1806.)

MEETINGS—Annual, second Wednesday in December, at Fonda; semi-annual, second Wednesday in June, at Canajoharie; quarterly, second Wednesday in September and March, at Amsterdam.

Officers. (December, 1897.)

T. G. Hyland, *President.*
C. M. Klock, *Secretary.*

C. E. Congdon, *Vice-President.*
E. F. Bronk, *Treasurer.*

Delegate to State Medical Society: C. W. De Baun.

Members.

Louis Aiken, Rockton
Douglas Ayres, Fort Plain
Herman Bauer, Amsterdam
Edmund F. Bronk, Amsterdam
I. I. Buckbee, Fonda
James B. Conan, Amsterdam
C. E. Congdon, Fort Plain
C. W. De Baun, Fonda
Wm. H. De Lamater, Minaville
J. R. Fairbanks, Amsterdam
S. H. French, Amsterdam
H. L. Furbeck, St. Johnsville
Archibald Gilbert, Amsterdam
T. G. Hyland, Amsterdam
R. G. Johnson, Amsterdam
C. M. Klock, St. Johnsville
John W. Kniskern, Amsterdam
G. G. Lewis, Syracuse
S. D. Lewis, Amsterdam
Daniel M. McMartin, Amsterdam
George L. Meyer, Stone Arabia
Jay J. Miller, Cobleskill

H. M. Murphy, Amsterdam
John Parr, Buell
Wm. J. Peddie, Fultonville
Wm. R. Pierce, Amsterdam
Henry W. Post, Fultonville
Wm. H. Robb, Amsterdam
E. E. Rulison, Buffalo
E. T. Rulison, Amsterdam
F. E. Simons, Canajoharie
A. V. H. Smith, Amsterdam
Augusta A. Steadman, Amsterdam
Charles Stover, Amsterdam
M. F. Sweatman, Amsterdam
Peter L. Suits, Tribe's Hill
D. M. Taylor, Amsterdam
D. N. Taylor, Canajoharie
C. F. Timmerman, Amsterdam
Christian C. Vedder, St. Johnsville
Frederick D. Vickers, Canajoharie
S. A. Wessels, Canajoharie

Number of Members, 42.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

MEETINGS.—Annual, fourth Monday in October; stated meetings, the fourth Monday in each month, June, July, and August excepted, at the New York Academy of Medicine, 17 West Forty-third Street.

Officers. (1898.)

Arthur M. Jacobus, *President.* Nathan Edwin Brill, *First Vice-President.*
William E. Bulard, *Secretary.* B. Farquhar Curtis, *Second Vice-President.*
John S. Warren, *Treasurer.*

Censors: Landon Carter Gray, *Chairman;* Walter Lester Carr,
Herman L. Collyer, Frank Herbert Daniels, Floyd M. Crandall, *Secretary.*

Editor : Daniel Lewis.

Committee on Hygiene : J. Henry Fruitnight, *Chairman* ; Earl Sprague Bullock, Augustus Caille, Grace Peckham Murray, Bernard Sachs.

Committee on Ethics : Robert A. Murray, *Chairman* ; William Balser, Malcolm McLean, Robert Wilbank, J. Lee Morrill.

Committee on Legislation : Alexander Hadden, *Chairman* ; James Hawley Burtenshaw, Thomas J. Hillis, James B. Huber, Maurice J. Lewi, J. N. Byrne, Charles E. Quimby, Heinrich Stern, Geo. F. Shradly, Theodore K. Tuthill, Simon J. Walsh, Wickes Washburn.

Committee on Prize Essays : Simon Marx, *Chairman* ; Robert H. M. Dawbarn, Geo. C. Freeborn.

Auditing Committee : Robert Campbell, *Chairman* ; Hobart Cheesman.

Delegates to State Medical Society :

Waldron B. Vanderpoel,	William L. Stowell,	Henry Hall Forbes,
Henry S. Drayton,	Grace Peckham Murray,	Dillon Brown,
B. Farquhar Curtis,	Louis F. Bishop,	Emil Mayer,
Frederick Peterson,	Henry J. Garrigues,	A. D. Rockwell,
Elon N. Carpenter,	Frank Van Fleet,	Joshua L. Barton,
T. Passmore Berens,	Richard Van Santvoord,	Dwight W. Hunter,
James K. Crook,	Wm. H. Haskin	A. H. Goelet,
Egbert H. Grandin,	Henrietta P. Johnson,	John Elmer Weeks,
Walter Lester Carr,	Charles L. Gibson,	George W. Jarman,
Thomas Darlington,	William B. Pritchard,	Mathias L. Foster,
Robert Milbank,	Daniel P. Pease,	Herman L. Collyer,
Simon Marx,	Robert A. Murray.	

Members.

Robert Abbe, 11 W. 50th st	Joseph Anderson, 79 W. 92d st
Frank Abbott, 206 W. 70th st	Joseph Alfred Andrews, 9 W. 22d st
Samuel V. Abel, 656 Lexington av	Frederick C. Anthes, 159 E. 32d st
S. H. Abkarian, 1486 Lexington av	S. T. Armstrong, 71 Meadow Lane,
Robert Abrahams, 156 Clinton st	New Rochelle, N. Y.
Onofrio Abruzzo, 95 Park st	William Armstrong, 24 W. 36th st
Calvin Thayer Adams, 21 E. 28th st	Moses Aronson, 101 7th st
John L. Adams, 17 W. 45th st	Morris J. Asch, 5 W. 30th st
Robert Staunton Adams, 24 W. 25th st	Edward J. Aspell, 357 W. 56th st
Lucius Coats Adamson, 41 W. 34th st	John Aspell, 357 W. 56th st
Isaac Alder, 12 E. 60th st	Augustus Assenheimer, 323 E. 51st st
David H. Agan, 1074 Lexington av	Charles Edwin Atwood, Blooming-
Aristides Agramonte, 144 W. 79th st	dale, White Plains
Francis J. Aitken, 220 E. 85th st	David P. Austin, 12 W. 95th st
John Aldrich, 106 W. 81st st	Ernest W. Auzal, 51 W. 50th st
Welcome T. Alexander, St. Nicholas	Edward A. Ayres, 8 E. 34th st
av and W. 157th st	James H. Bache, 335 W. 46th st
Ellice Murdoch Alger, 117 E. 26th st	Eugene O. Bachmann, 312 W. 34th st
Charles Lewis Allen, 1811 H st N.	Gorham Bacon, 63 W. 54th st
W., Washington, D. C.	Nathan Eddy Badgley, 74 7th av
Charles W. Allen, 126 E. 60th st	Pearce Bailey, 60 W. 50th st
John E. Allen, 470 W. 144th st	Henry A. Baker, 143 W. 44th st
Thomas H. Allen, 52 W. 45th st	Mercy N. Baker, 303 E. 18th st
J. R. Alvarez, 1350 Lexington av	Helen Baldwin, 113 W. 93d st
C. G. Am Ende, 266 W. 42d st	A. Brayton Ball, 42 W. 36th st
Samuel Patten Ames, 206 W. 69th st	George Martin Ball, 365 W. 28th st
H. A. C. Anderson, 118 E. 86th st	Geo. H. Balleray, 337 W. 88th st
James H. Anderson, 30 University pl	Henry Balser, Jr., 606 E. 9th st

William Balser, 218 E. 18th st
 William L. Baner, 72 W. 45th st
 Richard T. Bang, 139 W. 11th st
 L. Bolton Bange, 31 E. 44th st
 Francis M. Banta, 304 W. 12th st
 Julius Baran, 134 E. 79th st
 Hjalmer V. Barclay, 12 E. 106th st
 Justin L. Barnes, 16 E. 43d st
 Andrew Linn Barrett, 166 W. 122d st
 C. C. Barrows, 8 W. 36th st
 Daniel E. Barry, 447 Lexington av
 Frank H. Bartlett, 419 W. 147th st
 William A. Bartlett, 7 W. 49th st
 Joshua L. Barton, 57 E. 55th st
 Donald M. Barstow, 6 E. 9th st
 Simon Baruch, 51 W. 70th st
 W. H. Bates, 50 E. 64th st
 Frederick M. Bauer, 225 E. 86th st
 Joseph Baum, 238 E. 83d st
 Soma Baum, 255 2d av
 Ferdinand Beach, 201 W. 44th st
 Alexander W. Beck, 35 7th st
 Cirl Beck, 37 E. 31st st
 Philip G. Becker, 331 W. 18th st
 John N. Beekman, 10 E. 12th st
 Sarah Belcher, 129 W. 74th st
 William Duffield Bell, 160 W. 83d st
 Russell Bellamy, 152 W. 57th st
 Charles Sumner Benedict, 310 W. 102d st
 Walter Bensel, 282 Amsterdam av
 George K. Bentz, 54 St. Mark's pl
 T. Passmore Berens, 4 E. 43d st
 Adelbert B. Berk, St. Paul Building, cor. Ann and Broadway
 Wm. N. Berkeley, 66 Lexington av
 John Bettini-Moise, 42 W. 25th st
 John A. Beuermann, 1891 Lexington av
 Thomas Wotton Bickerton, 556 West End av
 Frederic Bierhoff, 139 W. 126th st
 Augustus E. Bieser, 256 W. 54th st
 George Bieser, 186 W. 102d st
 Horace Bigelow, 17 E. 38th st
 Andrew J. Bilhoefer, 153 E. 116th st
 John Haskill Billings, 125 E. 39th st
 John Sedgwick Billings, 32 E. 31st st
 Cornelius E. Billington, 85 Madison av
 Arthur Bird, 115 E. 40th st
 J. T. Joseph Bird, 236 W. 123d st
 Ernes R. Birkins, 144 W. 119th st
 Joseph N. Bishop, 12 W. 38th st
 Louis Faugeres Bishop, 30 W. 36th st
 Joseph B. Bissell, 15 W. 58th st
 Mary Taylor Bissell, 23 W. 44th st
 Carrie L. Black, 114 W. 123d st
 Emily Blackwell, 53 E. 20th st

Joseph A. Blake, 3 W. 68th st
 Alonzo Blauvelt, 328 W. 12th st
 Asher Bleiman, 602 E. 48th st
 Geo. D. Bleything, 1008 Madison av
 Moritz Bloch, 337 E. 58th st
 Frank Jefferson Blodgett, 140 W. 72d st
 Herman H. F. Boeker, 227 E. 58th st
 George W. Bogart, 139 E. 47th st
 Sylvester S. Bogert, 219 E. 17th st
 Edward A. Bogue, 63 W. 48th st
 Herman J. Boldt, 54 W. 51st st
 Hunter Ashby Bond, Manhattan State Hospital, Ward's Island
 J. Arthur Booth, 46 W. 49th st
 R. O. Born, 23 W. 35th st
 Francke H. Bosworth, 41 Park av
 Frank A. Bottome, 41 W. 126th st
 David Bovaird, 1696 Broadway
 James W. Bowden, Yonkers, N. Y.
 Fred. J. Bowles, 146 W. 93d st
 Arthur Albert Boyer, 33 W. 33d st
 Perry S. Boynton, 105 W. 77th st
 Nathan Cross Bozeman, 140 Madison av
 Max Bracker, 97 Second av
 C. Cole Bradley, 51 W. 50th st
 Edward Bradley, 19 W. 30th st
 Elizabeth Neely Bradley-Bystrom, 147 Warren st, Brooklyn, N. Y.
 Simeon C. Bradley, Marion av, Fordham
 Laban L. Bradshaw, 41 E. 72d st
 William G. Brady, 303 E. 23d st
 Simon Michael Brainin, 212 E. 112th st
 John Winters Brannan, 11 W. 12th st
 John H. Branth, 116 W. 84th st
 James A. Breakell, 249 W. 52d st
 Nathan Breiter, 172 E. 72d st
 W. W. Bremner, 39 Bloor st, E. Toronto, Canada
 Edwin V. Brendon, 213 W. 12th st
 Thomas J. Brennan, 118 E. 83d st
 Joseph Brettauer, 45 E. 64th st
 Wm. J. Bricklemaier, 24 W. 32d st
 Samuel M. Brickner, 109 W. 82d st
 Charles K. Briddon, 13 E. 38d st
 Arlanden C. Bridges, 363 W. 28th st
 Nathan E. Brill, 125 W. 77th st
 Morris W. Brinkmann, 73 E. 92d st
 E. L. Macomb Bristol, 113 E. 18th st
 A. Norton Brockaway, 50 E. 126th st
 Fred. J. Brockway, 183 W. 73d st
 George Livingston Broadhead, 60 W. 58th st
 Edward B. Bronson, 123 W. 34th st
 George Washington Brooks, 134 W. 37th st

- G. Frederick Brooks, 272 Boulevard
av
William R. Bross, 120 Broadway
William R. Broughton, 345 Madison
av
Leroy Broun, 70 W. 82d st
Walter Bros Brouner, 256 W. 12th st
Charles H. Brown, 25 W. 45th st
Dillon Brown, 40 E. 57th st
Ethel Doty Brown, 128 Lexington av
F. Tilden Brown, 14 E. 58th st
I. Morris Brown, 247 W. 104th st
Richard Ewell Brown, 60 W. 58th st
Sam'l A. Brown, 126 E. 45th st
W. Bedford Brown, 14 W. 33d st
Charles E. Bruce, 176th st and Am-
sterdam av
Albert F. Brugman, 1043 Boston av
Howard F. Brush, 2024 7th av
J. Conger Bryan, 351 W. 48th st
Joseph D. Bryant, 54 W. 36th st
Louise Fisk Bryson, 70 W. 46th st
Augustus F. Buchler, 124 W. 58th st
Albert H. Buck, 41 E. 45th st
Francis D. Buck, 158 W. 48th st
Charles A. Bucklin, 237 W. 45th st
L. Duncan Bulkley, 4 E. 37th st
Charles Steadman Bull, 47 W. 36th st
William T. Bull, 35 W. 35th st
William E. Bullard, 113 E. 40th st
W. Duff Bullard, 302 Madison av
William M. Bullard, 302 Madison av
John A. Bullinger, 711 Lexington av
Earl Sprague Bullock, 170 W. 85th st
T. Hamilton Burch, 68 W. 45th st
L. Burghheim, 176 E. 79th st
Michael Joseph Burke, 164 Hester st
Arnold Burkelman, 3 Charlton st
Herbert D. Burnham, 109 W. 16th st
Frederick A. Burrall, 48 W. 17th st
Maurice J. Burstein, 170 Henry st
Stephen Smith Burt, 21 W. 32d st
J. H. Burtenshaw, 128 W. 82d st
R. B. Burton, 223 E. 48th st
Thomas W. Busche, 241 E. 18th st
Pine E. Bush, 45 Charlton st
Charles H. Bushong, 49 W. 19th st
George H. Butler, 964 Fifth av
H. Hoyle Butts, 313 Madison av
Joseph Henry Byrne, 345 W. 51st st
Caroline A. W. Cabot, 126 W. 48th st
Follen Cabot, 41 W. 50th st
John Cabot, 126 W. 48th st
Herbert W. F. Cady, 121 E. 40th st
Augustus Caille, 753 Madison av
Peter A. Callan, 35 W. 38th st
D. M. Cammann, 19 E. 33d st
Archibald Campbell, Manhattan
State Hospital, Ward's Island
George Busby Campbell, Ward's
Island
Robert Campbell, 239 W. 135th st
William C. Campbell, 42 W. 49th st
George F. Carey, 142 E. 19th st
William Merle D'Aubigne Carhart,
147 W. 44th st
Robt. J. Carlisle, 44 W. 48th st
Albro R. Carman, 27 W. 127th st
Sydney H. Carney, 201 W. 55th st
Sydney H. Carney, Jr., 201 W. 55th st
Alfred C. Carpenter, 219 E. 19th st
Elon N. Carpenter, 120 E. 34th st
Frank B. Carpenter, The Allston, 17
E. 38th st
Henry B. Carpenter, Rochester, N.Y.
David C. Carr, 69 W. 126th st
Walter Lester Carr, 68 W. 51st st
J. S. Carradine, 45 W. 20th st
Joseph S. Carreau, 18 W. 21st st
Curtis B. Carter, 105 W. 71st st
De Lancey Carter, 1034 Park av
H. Skelton Carter, 130 E. 24th st
Henry Walton Carter, 204 E. 96th st
J. Henry Carver, 41 E. 33d st
Frederick A. Castle, 51 W. 58th st
Wm. H. Caswell, 201 W. 55th st
Clinton H. Catherwood, 322 W. 34th
st
Charles M. Cauldwell, 16 W. 54th st
Edwin R. Chadbourne, 31 W. 25th st
Edwin Crosby Chamberlain, 54 W.
83d st
Frank Warren Chamberlain, 117
Convent av
Geo. W. Chamberlain, Springfield,
Mass.
P. Flewellen Chambers, 24 E. 54th st
Amory Chapin, N. Y. Racquet Club
Henry Dwight Chapin, 51 W. 51st st
Walter Franklin Chappell, 7 E.
55th st
George T. Chase, 238 W. 127th st
William Earle Chase, 50 E. 126th st
Jean F. Chauveau, 31 W. 60th st
Jean F. Chauveau, Jr., 216 W. 103d st
Hobart Cheesman, 353 W. 57th st
Timothy Matlack Cheesman, 46 E.
29th st
Walter Cheyne, 350 W. 145th st
Joseph F. Chmelicek, 204 E. 72d st
T. M. L. Chrystie, 216 W. 46th st
Benj. Frank Churchill, 317 E. 86th st
John Herbert Clairborne, 39 W.
36th st
William Brewster Clark, 50 E. 31st st
Walter James Clark, 2297 Seventh av
Trumbull W. Cleveland, 45 W. 50th
st

- Margaret A. Cleaves, 79 Madison av
 James Brentano Clemmons, 148 W.
 34th st
 Geo. Place Clements, 121 E. 106th st
 Clement Cleveland, 59 W. 38th st
 Seth D. Close, 636 E. 143d st
 Meredith Clymer, 65 W. 38th st
 Cornelius Godfrey Coakley, 126 E.
 45th st
 George Henry Cob, 18 W. 35th st
 William Henry Cobe, Manhattan
 State Hospital, Ward's Isand
 Henry C. Coe, 27 E. 64th st
 Lewis A. Coffin, 145 W. 12th st
 Henry Coggeshall, 102 E. 57th st
 Felix Cohn, 38 E. 60th st
 Louis Cohn, 1242 Madison av
 Salo Cohn, 224 E. 79th st
 Carter S. Cole, 101 W. 74th st
 Palmer C. Cole, 254 W. 42d st
 Warren Coleman, 5 W. 30th st
 Wm. B. Coley, 5 Park av
 Christopher J. Colles, 30 W. 33d st
 Howard P. Collins, 224 Central av,
 Hot Springs, Ark.
 Chas. Farnham Collins, 119 E. 35th st
 Joseph Collins, 47 W. 38th st
 Herman L. Collyer, 109 E. 54th st
 Frank C. Combes, 220 E. 112th st
 John E. Comfort, 1315 Franklin av
 Henry A. Cone, 122 W. 71st st
 Lewis A. Conner, 18 W. 19th st
 Henry Rock Connor, 237 W. 34th st
 William S. Conover, 237 W. 132d st
 Herbert L. Constable, 145 W. 43d st
 Edmund H. Cook, Flushing, L. I.
 Stephen Guernsey Cook, 111 W.
 12th st
 J. Leonard Corning, 53 W. 38th st
 Garrett Cosine, 2150 Seventh av
 Gregory Costigan, 428 W. 34th st
 John H. Coughlin, 303 E. Broadway
 William Cowen, 35 E. 60th st
 Edwin B. Cragin, 62 W. 50th st
 Henry E. Crampton, 133 W. 123d st
 Floyd M. Crandall, 113 W. 95th st
 John Joseph Crane, 43 W. 71st st
 Patrick W. Cremin, 848 Lexington
 av
 Antonio Maria Crispin, 212 E. 70th
 st
 Reuben Cronson, 225 E. 116th st
 James King Crook, 36 E. 29th st
 Michael F. J. Crowley, 304 7th av
 William Ledlie Culbert, 118 Madi-
 son av
 Everett Mallory Culver, 36 W. 35th st
 Richard H. Cunningham, 200 W.
 56th st
 Mastin W. Curran, 154 E. 72d st
 Andrew F. Currier, 120 E. 34th st
 B. Farquhar Curtis, 7 E. 41st st
 Edward Curtis, 33 W. 69th st
 H. Holbrook Curtis, 118 Madison av
 John G. Curtis, 327 W. 58th st
 Elizabeth Cushier, 53 E. 20th st
 William F. Cushman, 325 W. 22d st
 Coleman Ward Cutler, 50 E. 53d st
 Condict W. Cutler, 135 W. 76th st
 Markar G. Dadirrian, 73 Lexington
 av
 Alexander Dallas, Bayonne, N. J.
 Charles L. Dana, 50 W. 46th st
 Annie S. Daniel, 327 E. 15th st
 Frank Herbert Daniels, 140 W.
 126th st
 Frederick Danne, 44 W. 50th st
 Thomas Darlington, Jr., Kingsbridge
 Wm. Lacey Darlington, 507 Hud-
 son st
 Karl Dauber, 121 E. 60th st
 Joseph Davidson, 307 E. 82d st
 O. C. S. Davies, Augusta, Maine
 John P. Davin, 117 W. 76th st
 Albert A. Davis, 119 E. 62d st
 A. Edward Davis, 22 E. 41st st
 Francis Wm. Davis, 211 W. 12th st
 E. Webster Davis, 153 W. 44th st
 Robert H. M. Dawbarn, 105 W.
 74th st
 William C. Deane, 114 E. 60th st
 Wilmot W. Dees, 352 W. 22d st
 William B. DeGarmo, 56 W. 36th st
 Arthur Charles Delacroix, Black-
 well's Island
 Francis Delafield, 12 W. 32d st
 D. Bryson Delevan, 1 E. 33d st
 Eden V. Delphe, 353 W. 57th st
 Wm. C. Deming, Westchester, N. Y.
 Edward B. Dench, 17 W. 46th st
 Charles E. Denhard, 90 Madison st
 Rudolph Denig, 30 W. 59th st
 William Sawyer Dennet, 8 E. 49th st
 Frederick S. Dennis, 542 Madison av
 Emmet C. Dent, Manhattan State
 Hospital, Ward's Island
 Myron Preston Denton, 33 E. 33d st
 Louis De Plasse, 27 & 29 E. 27th st
 Richard H. Derby, 9 W. 35th st
 Leonard A. Dessar, 25 W. 53d st
 S. Henry Dessau, 144 W. 85th st
 J. Harvie Dew, 252 W. 54th st
 A. Britton Deynard, 333 W. 51st st
 R. G. L. Dffenbach, 224 E. 48th st
 Frederick H. Dillingham, 76 W.
 85th st
 Frank Irving Disbrow, 154 W. 103d st
 George A. Dixon, 15 W. 49th st

- George S. Dixon, 124 Lexington av
Charles H. Dockstader, 281 W. 118th st
Frederick E. D'Oench, 12 E. 28th st
Wm. Elliott Dold, Bloomingdale, White Plains
John H. Dorn, 51 W. 9th st
John Dorning, 252 W. 25th st
George E. Doty, 216 W. 38th st
Jas. Stewart Doubleday, 69 W. 93d st
Daniel S. Dougherty, 352 W. 42d st
O. B. Douglas, 123 E. 36th st
Charles N. Dowd, 135 W. 73d st
John W. Doyle, 333 W. 20th st
William F. Drake, 101 W. 84th st
William H. Draper, 19 E. 47th st
William K. Draper, 19 E. 47th st
Henry S. Drayton, 27 E. 21st st
Alexander Duane, 49 E. 30th st
A. Palmer Dudley, 678 Madison av
Arthur Baldwin Duell, 14 W. 32d st
Edward K. Dunham, 338 E. 26th st
Theodore Dunham, 110 W. 57th st
Thomas J. Dunn, 2735 Webster av
Milo M. Duntun, 37 7th st
Ghislani Durant, 12 W. 46th st
Albert Durham, Bloomingdale, White Plains, N. Y.
Jonathan Dwight, Jr., 2 E. 34th st
Robert W. Eastman, 140 W. 76th st
Louise Eaton, 473 W. 145th st
Martin J. Echeverria, 44 W. 75th st
George M. Edebohls, 59 W. 49th st
J. Clifton Edgar, 50 E. 34th st
James Ives Edgerton, 215 W. 43d st
Paul Ehrhart, 313 W. 30th st
Anton Eidenbenz, 361 W. 51st st
Max Einhorn, 20 E. 63d st
M. Elezarian, 52 E. 31st st
Ellsworth Elliot, 48 W. 36th st
George T. Elliot, 14 W. 32d st
J. Nelson F. Elliot, 153 W. 14th st
George R. Elliott, 48 E. 26th st
C. Ruxton Ellison, 206 E. 116th st
Saram R. Ellison, 266 W. 43d st
Charles Albert Elsberg, 137 E. 57th st
Charles P. Elwert, 47 W. 16th st
Albert H. Ely, 47 W. 56th st
Leonard W. Ely, 6 E. 35th st
J. Seymour Emans, 221 E. 19th st
J. Baxter Emerson, 20 E. 30th st
J. H. Emerson, 81 Madison av
Bache Emmet, 18 E. 30th st
John Duncan Emmet, 91 Madison av
Thos. Addis Emmet, 91 Madison av
Bernhard Engelsman, 306 E. 89th st
Floyd B. Ennist, 117 W. 95th st
John F. Erdmann, 149 W. 44th st
Michael Erlwein, 1849 Columbus av
Peter H. Ernst, 141 E. 16th st
Julius Augustus Escobar, 220 W. 121st st
G. A. Evans, 357 W. 15th st
Herman Crocker Evarts, Hart's Island
Frank J. Eversfield, 347 W. 21st st
James Ewing, 260 W. 57th st
W. A. Ewing, 134 W. 58th st
Chas. O. Fairbank, Petrolia, Ont.
J. N. Farrar, 1271 Broadway
J. O. Farrington, 1991 Madison av
William H. Farrington, Astor House
M. B. Feeney, 32 E. 8d st
S. Feinberg, 148 E. 81st st
Benson M. Feldman, 170 E. 79th st
Amelia M. Fendler, 153 E. 92d st
John E. Ferdinand, 220 W. 127th st
James Alexander Ferguson, 34 Lind av, High Bridge
Frank Ferguson, 20 W. 38th st
James Francis Ferguson, 168 Lexington av
Jeremiah Sweetser Ferguson, 355 W. 28th st
Jose M. Ferrer, 441 Park av
Albert Warren Ferris, 10 E. 47th st
Frank S. Fielder, 33 W. 93d st
William J. Fields, 250 W. 88th st
Albert Finkelstone, 216 E. 105th st
Edward B. Finch, 226 W. 75th st
Charles S. Fischer, Jr., 201 W. 118th st
Louis Fischer, 187 Second av
Siegfried Fischer, 314 E. 15th st
Gustav Grant Fischlowitz, 1708 Lexington av
Edward D. Fisher, 42 W. 45th st
Arthur Fishmann, 118 Rivington st
Arthur Lyman Fisk, 13 W. 50th st
James Porter Fiske, 328 W. 57th st
Allen Fitch, 152 W. 34th st
Patrick Henry Fitzhugh, 28 W. 59th st
Martin J. Fleming, 132 Lexington av
Walter M. Fleming, Hotel Imperial
Frederic H. Floy, 107 W. 85th st
William F. Fluhrer, 479 Fifth av
Francis Foerster, 39 W. 52d st
John P. Foland, 511 Hudson st
Edward Milton Foote, 68 W. 35th st
Henry Hall Forbes, 24 W. 25th st
Charles M. Ford, 218 W. 135th st
James C. Ford, 233 E. 104th st
John A. Fordyce, 66 Park av
Matthias Lanckton Foster, 222 E. 41st st
John Fourness-Brice, White Star Dock, foot of W. 10th st
Edward Payson Fowler, 38 W. 40th st

- George B. Fowler, 18 E. 58th st
 Andrew Jackson Fox, 120 Broadway
 George Henry Fox, 18 E. 31st st
 John Frank, 111 Rivington st
 Edward Frankel, 217 E. 17th st
 J. H. Frankenberg, 142 E. 74th st
 George C. Freeborn, 215 W. 70th st
 Joseph Freedman, 162 E. 74th st
 Alpheus Freeman, 123 E. 74th st
 Roland G. Freeman, 205 W. 57th st
 Wolff Freudenthal, 1003 Madison av
 Edward Fridenberg, 242 Lenox av
 Percy H. Fridenberg, 60 W. 76th st
 Samuel Friedman, 311 E. 50th st
 H. David Froehlich, 117 E. 80th st
 Richard Frothingham, 19 E. 38th st
 J. Henry Fruitnight, 161 W. 57th st
 Frederick Louis Fuchs, 10 St. Mark's
 pl
 Eugene Fuller, 252 Lexington av
 Robert M. Fuller, 136 W. 42d st
 George Clarence Gage, 47 W. 49th st
 Anna M. Galbraith, 159 W. 73d st
 A. Ernest Gallant, 10 W. 36th st
 Alfred W. Gardiner, 59 W. 54th st
 Henry J. Garrigues, 716 Lexington av
 William J. Gaudineer, 131 E. 116th st
 Edwin Van Deusen Gazzam, 153 W.
 46th st
 Arpad G. Gerster, 34 E. 75th st
 Albert C. Geyser, 449 St. Ann's av
 W. Travis Gibb, 158 E. 37th st
 Paul Gibier, 1 W. 97th st
 Virgil P. Gibney, 16 Park av
 C. Langdon Gibson, 46 W. 33d st
 Horatio Gates Gibson, Jr., Black-
 well's Island
 Lewis M. Gibson, 158 W. 81st st
 J. Edward Gies, United Charities
 Building, Rooms 217, 217a, and
 218 Fourth av and 22d st
 W. Whitehead Gilfillan, 24 W. 59th
 st
 Walter R. Gillette, 24 W. 40th st
 Francis Ginnasi, 118 Macdougall st
 Joseph Glaser, 132 E. 74th st
 Robert W. Glassford, 350 W. 46th st
 Joseph Wm. Gleitsmann, 46 E. 25th
 st
 Samuel Glück, 1041 Madison av
 A. Lawrence Gnichtel, 437 W. 44th st
 George H. Godson, 301 W. 114th st
 Augustin H. Goelet, 108 W. 73d st
 Harry D. Goetchius, 147 E. 51st st
 J. Riddle Goffe, 22 E. 35th st
 Herman Goldenberg, 22 E. 63d st
 S. Ormond Goldman, 233 W. 49th st
 Marcus K. Goldsmith, 1704 Lexing-
 ton av
 Abraham Lincoln Goodman, 259 W.
 113th st
 D. H. Goodwillie, 154 W. 34th st
 Bernard Gordon, 152 Henry st
 Jonathan Rhea Gordon, 640 Madison
 av
 John D. Gorman, 326 E. 67th st
 Owen A. Gorton, Sherburne, Che-
 nango Co
 David Bartlett Gould, 257 W. 15th st
 Sidney S. Graber, 185 E. 71st st
 Carl E. H. Graeb, 218 E. 114th st
 Egbert H. Grandin, 36 E. 58th st
 Frederic H. Grant, 173 Fifth av
 Gabriel Grant, 22 E. 49th st
 Joseph F. Gray, 354 W. 29th st
 Landon Carter Gray, 6 E. 49th st
 Rollin B. Gray, 202 W. 81st st
 William J. Greanellé, 11 Hamden st,
 University Heights, N. Y. City
 Solomon Greenbaum, 183 Stanton st
 Robert Holmes Greene, 47 W. 38th st
 E. Harrison Griffin, 112 W. 45th st
 Henry Arthur Griffin, 37 W. 52d st
 Henry Griswold, 42 W. 35th st
 Morris Gross, 108 Rivington st
 Emil Gruening, 109 E. 23d st
 Arago J. Guck, 401 Hancock st,
 Brooklyn
 Arthur Rose Guerard, 2143 Seventh
 av
 Charles F. Guillou, 26 E. 11th st
 Ramon Guiteras, 23 W. 53d st
 Josephus Henry Gunning, 640 Mad-
 ison av
 J. Henry Güntzer, 345 E. 86th st
 William C. Guth, 253 E. 71st st
 Frederick Guttman, 170 W. 82d st
 Jonas Guttman, 354 E. 4th st
 Fred. W. Gwyer, 332 Lexington av
 Charles Alex. Habersack, 832 E.
 161st st
 John Habirshaw, 250 W. 57th st
 Alexander Hadden, E. 155 51st st
 Franklin Reeves Haines, Ward's
 Island, N. Y.
 Edwards Hall, 17 E. 66th st
 Robert W. Hall, 69 Lexington av
 William H. Hall, 129 E. 54th st
 Luther Reeve Hallock, 155 W. 129th
 st
 Silas F. Halleck, 26 E. 54th st
 Julius Halpern, 250 E. Broadway
 Frank Spencer Halsey, 123 W. 69th
 st
 Allan McLane Hamilton, 44 E. 29th
 st
 George Dempster Hamlen, 8 W.
 36th st

- Graeme M. Hammond, 58 W. 45th st
 Irwin H. Hance, Lakewood, N. J.
 Horace Tracy Hanks, 766 Madison av
 Edward Eliot Harris, 33 W 93d st
 Thomas J. Harris, 117 E. 40th st
 George Tucker Harrison, 221 W. 23d st
 Jacob Hartmann, 267 W. 36th st
 William Henry Haskin, 22 E. 41st st
 William Hassloch, 932 Second av
 Louis Haupt, 61 Rivington st
 Foster S. Haven, 143 W. 61st st
 John Beers Hawes, 18 E. 32d st
 Walker A. Hawes, 745 Lexington av
 Harry W. Hawlik, 229 E. 14th st
 James Raynor Hayden, 107 W. 55th st
 William Van Valzah Hayes, 10 E. 43d st
 Irving S. Haynes, 131 E. 86th st
 Henry Comstock Hazen, 66 W. 56th st
 Willard Avery Heacock, 139 W. 85th st
 Joseph S. Healy, Kingsbridge
 Jesse W. Hedden, 147 E. 21st st
 Marcus Babcock Hefnan, Manhattan State Hospital
 Henry Heiman, 220 E. 116th st
 Henry N. Heinemann, 62 W. 51st st
 Louis Heitzman, 39 W. 45th st
 Herman Hellenstein, 710 E. 5th st
 J. Julio Henna, 8 W. 40th st
 Harry B. Henson, 318 W. 126th st
 Henry Herman, 627 Lexington av
 Justin Herold, 173 E. 80th st
 Everett Herrick, 126 Madison av
 Christian A. Hertz, 319 Madison av
 Alfred A. Herzfeld, 214 W 24th st
 Emi Heuel, 350 Willis av, near 142d st
 Frank Heuel, 26 Irving pl
 Marcus B. Heyman, Hart's Island
 George Heywood, 143 W. 34th st
 Wm. B. Hibbard, 90 Broad st, Providence, R. I.
 Edmund Yard Hill, 360 W. 58th st
 John Augustus Hill, Ward's Island
 Thomas J. Hillis, 51 Charlton st
 Alfred K. Hills, 669 Fifth av
 Arthur T. Hills, 129 W. 81st st
 Adolph A. Himowich 136 Henry st
 Gardner Hiron, 152 W. 49th st
 William Hirsch, 53 E. 60th st
 Charles Hitchcock, 57 W. 36th st
 Edwin F. Hitchcock, 114 W. 90th st
 H. M. Hitchcock, Mutual Reserve Building, Broadway
 Urban G. Hitchcock, 51 W. 29th st
 Ward B. Hoag, 67 W. 96th st
 Angier Baily Hobbs, 66 W. 38th st
 Emanuel Hochheimer, 71 E. 91st st
 Abbott Hodgman, 141 E. 38th st
 Emil W. Hoeber, 612 Lexington av
 Charles Hoffman, 1463 Lexington av
 James K. Hogan, 140 Henry st
 William Frederick Holcombe, 54 E. 25th st
 T. N. Holden, 294 East Broadway
 Ward A. Holden, 45 W. 39th st
 Oscar Howe Holder, 41 W. 50th st
 Thomas H. Holgate, 206 W. 14th st
 Austin W. Hollise, 111 W. 47th st
 Geo. W. Holmes, Barrett House
 John F. Holmes, 844 E. 165th st
 Martha C. Holmes, 75 W. 126th st
 Edgar S. Holt, 246 W. 48th st
 L. Emmett Holt, 15 E. 54th st
 Oscar P. Honegger, 171 E. 71st st
 Franklin P. Hoover, 143 W. 45th st
 George B. Hope, 34 W. 51st st
 Frank E. Hopkins, 317 Main st, Springfield, Mass.
 J. Swinburne Hopkins, 52 W. 84th st
 Woolsey Hopkins, 226 W. 79th st
 John Horn, 255 E. Broadway
 Lucius W. Hotchkiss, 49 W. 50th st
 H. Seymour Houghton, 301 W. 88th st
 William Norris Hubbard, 17 E. 88th st
 Marvin D. Hubbell, 236 W. 136th st
 Francis Huber 118 E. Broadway
 John Bessner Huber, 72 W. 47th st
 Joseph Huber, Jr., 113 E. Broadway
 John H. Huddleston, 126 W. 85th st
 Walter G. Hudson, 73 W. 131st st
 Henry G. Hughes 139 E. 47th st
 Joseph J. Hull, 64 W. 35th st
 Frederick T. Hume, 82 E. 79th st
 William A. Hume, 82 E. 79th st
 Henry Richard Humphries, Hart's Island
 Dwight W. Hunter, 233 Madison av
 George T. Hunter, 332 W. 33d st
 Abel Huntington, 346 Broadway
 Edward Fowler Hurd, 1835 Anthony av
 Francis Hustace, 413 Madison av
 Frederick E. Hyde, 20 W. 53d st
 Henry Iloway, 1188 Madison av
 John Arthur Irving, 14 W. 29th st
 S. Nelson Irwin, 217 W. 42d st
 Archibald E. Isaacs, 168 Henry st
 Charles Warren Jackson, 130 W. 81st st
 Frank W. Jackson, 12 W. 18th st
 George Thomas Jackson, 14 E. 31st st

- Moses Jose Jackson, 125 E. 84th st
 Victor Hugo Jackson, 240 Lenox av
 Abraham Jacobi, 110 W. 34th st
 Mary Putnam Jacobi, 110 W. 34th st
 William Jacobsohn, 975 Park av
 Arthur Middleton Jacobus, The
 Rutland, 260 W. 57th st
 George W. Jacoby, 663 Madison av
 Archer Ward Jagger, Flushing, L. I.
 Otto August Jahn, 238 E. 45th st
 Robert Coleman James, 5 W. 30th st
 Edward G. Janeway, 36 W. 40th st
 John Peter Janinski, Mt. Vernon
 Joseph E. Janvrin, 191 Madison av
 Schuyler C. Jacques, 614 Lexington
 av
 George Wallace Jarman, 61 W. 74th
 st
 Alexander McL. Jeffrey, 133 E.
 39th st
 Smith Ely Jelliffe, 231 W. 71st st
 Wm. T. Jenkins, Coroner's Office,
 N. Y.
 David D. Jennings, 315 E. 20th st
 Fred. N. C. Jerauld, 201 W. 87th st
 Charles Taylor Jewett, 162 W. 22d st
 Elizabeth Johnson, 125 W. 58th st
 Henrietta Pauline Johnson, 21 Irving
 pl
 W. H. Johnson, 103 W. 29th st
 George W. Johnston, 321 W. 116th st
 James C. Johnston, 115 W. 84th st
 Jas. H. Jolliff, 105 W. 86th st
 Charles N. Dixon Jones, 502 W.
 142d st
 Israel C. Jones, Med. Supt. Home for
 Incurables, Fordham, 182d &
 Third av
 S. Beach Jones, 23 W. 32d st
 S. Seabury Jones, 712 Madison av
 Adoniram B. Judson, Metropolitan
 Building, 1 Madison av
 Kenneth Frank Junor, 323 W. 28th
 st
 Moses S. Kakeles, 814 Lexington av
 S. W. Kakeles, 814 Lexington av
 Richard Kalish, 36 W. 47th st
 Fred Kammerer, 667 Madison av
 Arthur M. Kane, 347, W. 34th st
 Adolph Kantrovitz, 120 Rivington st
 W. H. Katzenbach, 22 W. 45th st
 Meyer Katzenbach, 1190 Lexing-
 ton av
 Guido Katzenmayer, 625 Lexington
 av
 Jacob Kaufmann, 52 E. 58th st
 T. J. Kearny, 155 Lexington av
 Fred'k Conrad Keller, 411 W. 43d st
 Henry Judson Kelly, 305 E. 17th st
 James E. Kelly, 117 E. 59th st
 Thomas Kelly, 357 W. 57th st
 Charles B. Kelsey, 18 E. 29th st
 J. T. Kemp, 202 E. 69th st
 Robert Coleman Kemp, The Ken-
 sington, 449 Park av
 William M. Kemp, 267 W. 23d st
 J. A. Kenefick, 50 E. 31st st
 John M. Kennedy, 168 W. 97th st
 John T. Kennedy, 107 E. 29th st
 Beverly Randolph Kennan, Ward's
 Island
 Chas. Gilmore Kerley, 113 W. 83d st
 Adolph Kessler, 906 Park av
 Theodore Keune, 70 W. 20th st
 Edward L. Keyes, 109 E. 34th st
 Eleanor B. Kilham, 53 E. 20th st
 Otto G. T. Kiliani, 133 E. 57th st
 Theron Wendell Kilmer, 28 W. 61st
 st
 Reuel B. Kimball, 24 E. 41st st
 Charles A. Kinch, 273 W. 70th st
 David F. King, 651 Lexington av
 Thomas Armstrong King, 141 Lex-
 ington av
 Francis P. Kinnicut, 39 E. 35th st
 Isaac L. Kipp, 448 Fifth av
 Herman G. Klotz, 42 E. 22d st
 Arnold Herman Knapp, 26 W. 40th st
 John B. Knapp, 62 W. 51st st
 Mark Israel Knapp, 280 Broome st
 Ferdinand G. Kneer, 236 W. 51st
 George S. Knickerbocker, 145 W.
 128th st
 Charles H. Knight, 147 W. 57th st
 George Knipe, 353 W. 24th st
 Siegmund Adolph Knopf, 955
 Madison av
 R. A. Koempel, 884 E. 161st st
 Henry F. Koester, 336 E. 84th st
 Albert Kohn, 217 E. 62d st
 Sophie Kupfer Kohn, 132 Manhat-
 tan av
 Samuel Kohn, 805 Madison av
 Edmund Koll, 433 W. 47th st
 Henry M. Koles, 109 E. 116th st
 Carl Koller, 715 Madison av
 Henry Koplik, 66 E. 58th st
 Frederic De Kraft, 242 W. 42d st
 Gezar Kremer, 331 E. 84th st
 Carl F. Kremmer, 112 E. 57th st
 Henry Krollpfeiffer, 48 St. Mark's
 pl
 Florian Krug, 13 E. 41st st
 William K. Kubin, 147 W. 120th st
 Herman F. Kudlich, 56 W. 17th st
 George W. Kunz, 156 E. 65th st
 Ferreol T. Labadie, Central Park,
 West and 97th st

- Louis J. Ladinski, 243 E. Broadway
 Linnaeus E. La Petra, 23 W. 37th st
 Edward W. Lambert, 2 E. 37th st
 Walter Eyre Lambert, 8 W. 35th st
 M. Landesmann, 727 E. 5th st
 Samuel M. Landsman, 57 E. 3d st
 Fred Lange, 130 E. 61st st
 Gustav Langmann, 121 W. 57th st
 Boleslaw Lapowski, 28 W. 59th st
 James R. Latham, 126 W. 11th st
 James Law, 19 E. 127th st
 George Alfred Lawrence, 15 Central
 Park West
 Charles A. Leale, 604 Madison av
 Emanuel Leberman, 180 E. 64th st
 William G. Le Boutillier, 49 W.
 50th st
 Elmer Lee, 10 W. 49th st
 M. D. Lederman, 128 E. 60th st
 Egbert LeFevre, 52 W. 56th st
 George M. Lefferts, 212 Madison av
 Bartholomew Lefkovich, 9 Clinton st
 Carl H. Lellmann, 71 E. 55th st
 S. Newton Leo, 103 W. 55th st
 Alexis Marcy Leon, 79 E. 56th st
 A. D. Leonard, 352 E. 84th st
 Z. L. Leonard, 326 E. 116th st
 A. Mona Lesser, 19 E. 61st st
 William M. Leszynsky, 959 Madi-
 son av
 John Leuchs, 628 E. 145th st
 Alexander S. Levery, 117 E. 114th
 st
 Frederick J. Leviser, 640 Madison
 av
 Maurice J. Lewi, Bowling Green
 Building, 5 Broadway
 Leon T. Lewald, 128 E. 38th st
 David Clarence Lewinthal, 157
 Henry st
 Amos C. Lewis, Fordham Heights
 Charles Henry Lewis, 28 W. 61st st
 Daniel Lewis, 252 Madison av
 Frank N. Lewis, 36 E. 31st st
 Robert Lewis, Jr., 14 E. 45th st
 William Jerauld Lewis, 319 W.
 116th st
 Albert Henry Leyton, The Rutland,
 256 W. 57th st
 Charles Liebenau, 1143 Washington
 av
 J. Monroe Liebermann, 309 E. 4th st
 Anton Liebig, 2063 Third av
 Ed. Nicholas Liell, St. James Park,
 Jacksonville, Fla.
 Howard Lilienthal, 679 Madison av
 Rufus P. Lincoln, 22 W. 31st st
 J. H. Lindsley, Burlington, Vt.
 Friedes E. Lippert, 53 Washington av
 William M. Lively, 216 W. 28th st
 Frank Livermore, 113 W. 40th st
 F. O. Lloyd, Hamilton, N. Y.
 Samuel Lloyd, 24 W. 50th st
 Charles E. Lockwood, 34 W. 38th st
 George Roe Lockwood, 44 W. 49th st
 Hugo J. Loebinger, 101 W. 135th st
 John Logue, 225 W. 34th st
 H. P. Loomis, 58 E. 34th st
 Edward J. Lorenze, 1658 Lexing-
 ton av
 Edward Lowenbein, 147 Av. B
 Ogden C. Ludlow, 2309 Seventh av
 James M. Ludden, 243 W. 120th st
 Joseph Edward Lombard, 1975
 Seventh av
 Thurston G. Lusk, 137 E. 34th st
 Sigmund Lustgarten, 15 E. 62d st
 Alexander Lyle, Jr., 117 E. 81st st
 James Walter Lyman, 424 W. 34th st
 John B. Lynch, 148 W. 22d st
 P. J. Lynch, 216 E. 13th st
 George S. Lynde, 326 W. 45th st
 Jonathan F. Lyon, 231 E. 116th st
 Samuel K. Lyon, 312 Second av
 D. Stanley Lyons, 223 E. 30th st
 Frederick A. Lyons, 50 E. 63d st
 Charles McBurney, 23 W. 37th st
 Samuel McCallum, 17 Stuyvesant st
 Henry B. McCarroll, 101 W. 85th st
 E. S. McClellan, Saranac Lake
 Andrew J. McCosh, 22 E. 56th st
 Peter J. McCourt, 233 W. 23d st
 William McCracken, 305 E. 18th st
 Wm. B. McCracken, 305 E. 18th st
 Forbes R. McCreery, 129 E. 40th st
 John A. McCreery, 20 E. 54th st
 John McCroskery, 318 W. 116th st
 Dennis J. McDonald 207 E. 43d st
 William H. McEnroe, 153 W. 12th st
 George D. McGauran, 422 W. 51st st
 Timothy J. McGillicuddy, 710 Madi-
 son av
 E. L. H. McGinnis, 329 Amster-
 dam av
 J. P. McGowan, 20 E. 29th st
 Augustine Chas. McGuire, 105 W.
 88th st
 B. C. McIntyre, 146 W. 12th st
 William McKay, 40 E. 10th st
 James F. McKernon, 116 W. 48th st
 Malcolm McLean, 29 E. 126th st
 J. B. McMahon, 325 Lexington av
 Wm. T. McMannes, 320 W. 45th st
 N. G. McMaster, 322 E. 15th st
 Joseph M. McMillan, 359 W. 47th st
 William S. McMurdy, 332 W. 51st st
 Julia G. McNutt, 265 Lexington av
 Sarah J. McNutt, 265 Lexington av

John Joseph McPhee, 77 Manhattan st

Daniel E. McSweeney, 129 E. 29th st
J. Milton Mabbott, 19 Fifth av

R. K. Macalester, 1176 Park av

A. E. Macdonald, Gen'l Supt. Manhattan State Hospital, Ward's Island

Belle J. Macdonald, cor. 3d and Washington sts, Portland, Oregon

C. F. MacDonald, 85 Madison av

E. Macfarlan, 274 W. 128th st

Ferdinand S. Machale, 317 E. 87th st

Burnett C. Macintyre, 146 W. 12th st

D. H. Mackie, 224 W. 35th st

Wm. Austin Macy, Med. Supt. Manhattan State Hospital, Ward's Island

Jose Lesandro Maduro, 232 W. 34th st

Montefiore L. Maduro, 16 W. 84th st

David Magie, 32 W. 48th st

Frank Hosmer Magness, Ward's Island

J. J. E. Maher, 215 W. 23d st

Otto Maier, 316 E. 18th st

Charles O. Maisch, 135 Broadway

Percy Edwin Dunlop Malcolm, 118 Madison av

Joseph B. Manch, 238 W. 38th st

E. Pierre Mallett, 65 W. 69th st

Geo. Hooper Mallett, 65 W. 69th st

Nicolaus Martin Mandl, 746 5th st

F. S. Mandlebaum, 216 E. 60th st

Morris Manges, 941 Madison av

George Manheimer, 133 E. 80th st

Charles Albert Manson, 123 E. 36th st

Marcus Markiewicz, 61 Rivington st

Francis H. Markoe, 15 E. 49th st

Thomas Masters Markoe, 15 E. 49th st

Wilbur B. Marple, 20 W. 31st st

David Trumbull Marshall, 206 W. 106th st

J. Martin, 437 W. 47th st

T. Dwight Martin, 528 E. 161st st

Siegfried Martus, 1652 Lexington av

David M. Marvin, 6 W. 130th st

S. Marx, 947 Madison av

E. Gaillard Mason, 213 W. 79th st

Louis Irving Mason, 108 W. 75th st

R. Osgood Mason, 343 W. 58th st

George E. Maurer, 165 E. 60th st

Calvin S. May, 57th st and Seventh av

Charles H. May, 692 Madison av

Abraham Mayer, 40 E. 60th st

Emil Mayer, 25 E. 77th st

A. W. Maynard, 308 W. 45th st

Charles B. Meding, 123 W. 121st st

James T. Meehan, 394 Broome st

E. L. Meierhof, 57 E. 64th st

Philip Meirowitz, 202 W. 131st st

Samuel J. Meltzer, 66 E. 124th st

Walter Mendelson, 159 W. 74th st

John H. Mennen, 150 W. 22d st

William Menzies, 1 W. 81st st

Frank W. Merriam, 136 W. 11th st

Estelle C. Merrill, 2 W. 83d st

Edward J. Messemer, 144 Second av

Joseph E. Messenger, 323 W. 19th st

Alfred Meyer, 801 Madison av

Alfred Edward Meyer, 102 W. 93d st

Willy Meyer, 700 Madison av

George H. Meyers, 47 E. 61st st

Leonidas L. Mial, 145 W. 12th st

Ludwig M. Michaelis, 1090 Lexington av

John Izard Middleton, 30 W. 36th st

Robert Milbank, 154 W. 48th st

Augustus Milleg, 66 Second av

E. A. Miller, 242 E. 86th st

Frank E. Miller, 121 W. 34th st

Theo. De Clermont Miller, 102 E. 124th st

Thomas S. P. Miller, 150 W. 37th st

Jackson M. Mills, 651 Madison av

Simeon B. Minden, 230 E. 69th st

John C. Minor, 10 E. 41st st

S. Carrington Minor, 850 E. 165th st

Hubbard W. Mitchell, 747 Madison av

Mary E. Mitchell, 225 Touvele av, Jersey City Heights

Charles B. J. Mittelstaedt, Fordham Hospital

Wm. F. Mittendorf, 140 Madison av

Charles H. Moak, 2051 Seventh av

Henry Moeller, 341 W. 57th st

Richard Mollenhauer, 246 E. 53d st

Nathan Molner, 56 Eldridge st

S.H. Monell, 865 Union st, Brooklyn

Reuben Fletcher Montte, Manhattan State Hospital, Ward's Island

Charles James Mooney, 18 E. 63d st

Henry Walton Mooney, 18 W. 129th st

J. Alexander Moore, Helena, Mont.

John Frederick Moore, 156 W. 94th st

William Moore, 271 Broadway

William Oliver Moore, 42 E. 29th st

Joseph Moorehead, 310 Second av

John Joseph Moorehead, J. Hood Wright Mem. Hospital

James Moran, 333 W. 51st st

Charles F. Morcom, 252 W. 15th st

Benjamin Morjé, 116 E. 73d st

- Evarts Monroe Morrell, 1 Madison av
 J. Lee Morrill, 67 E. 79th st
 George F. Morris, 161 W. 87th st
 Lewis Morris, 228 W. 22d st
 Louis Morris, 77 Orchard st
 Robert S. Morris, 146 E. 71st st
 Robert T. Morris, 49 W. 39th st
 Wm. H. Morrison, 900 Boulevard av
 Prince A. Morrow, 66 W. 40th st
 William Golden Mortimer, 149 W. 66th st
 Bowditch Morton, University Club
 William James Morton, 19 E. 28th st
 Alexis V. Moschowitz, 364 W. 55th st
 William B. Moseley, Manhattan
 State Hospital, Blackwell's Island
 George J. Moser, 359 E. 10th st
 Eugene C. Mowry, 355 W. 42d st
 Robert P. Muellenbach, 232 E. 10th st
 Amasa P. Muir, Ward's Island
 Richard W. Muller, 147 E. 18th st
 Paul F. Mundé, 20 W. 45th st
 John P. Munn, 18 W. 58th st
 William H. Munn, 214 W. 42d st
 George E. Munroe, 43 E. 33d st
 Charles Basil Murray, 307 E. 79th st
 Grace Peckham-Murray, 48 W. 52d st
 Robert A. Murray, 112 W. 80th st
 Arthur T. Muzzy, 100 E. 57th st
 Howard G. Myers, 303 Amsterdam av
 Thad. Halsted Myers, 24 W. 50th st
 Robert C. Myles, 46 W. 38th st
 J. Darwin Nagel, 61 W. 35th st
 John T. Nagle, 47 E. 21st st
 Charles E. Nammack, 42 E. 29th st
 George W. Nash, Kingsbridge
 Miles Henry Nash, 217 W. 43d st
 George G. Needham, 218 E. 19th st
 Lewis Knode Neff, 1213 Park av
 William B. Neftel, 16 E. 48th st
 James Neil, 1712 Madison av
 J. De Witt Nelson, 368 W. 55th st
 James R. Nelson, 456 Lexington av
 Wolfred Nelson, Astor House
 John H. Nesbitt, 237 W. 45th st
 Albert W. Neufeld, 113 E. 116th st
 George Emile Neuhaus, 171 W. 95th st
 John J. Neville, 247 W. 49th st
 Albert S. Newcomb, 206 W. 71st st
 James E. Newcomb, 118 W. 69th st
 Wm. Newman, 574 Lafayette av, Brooklyn
 Eleanor Frost Newton, Hotel Lincoln
 Robert Stafford Newton, 19 E. 44th st
 James E. H. Nichols, 4 E. 43d st
 Curt E. H. Nicolai, 81 W. 119th st
 Henry D. Nicoll, 51 E. 57th st
 Matthias Nicoll, Jr., 1696 Broadway
 J. R. Nilsen, 69 W. 50th st
 J. Douglas Nisbit, 10 E. 43d st
 Mark Nivison, 214 W. 42d st
 John G. Noble, 222 W. 34th st
 Felix Nodremann, 210 E. 60th st
 V. H. Norrie, 21 W. 37th st
 Henry S. Norris, 123 W. 34th st
 James Harper North, Jr., 3 W. 74th st
 Wm. P. Northrup, 57 E. 79th st
 Henry D. Noyes, 233 Madison av
 William D. Noyes, 162 W. 73d st
 Francis A. Nye, 2089 Lexington av
 John M. O'Brien, 356 W. 35th st
 M. C. O'Brien, 161 W. 122d st
 John H. O'Connor, 150 W. 16th st
 Robert Offenbach, 46 E. 60th st
 Charles L. Ogden, 252 Madison av
 Nathan Oppenheim, 50 E. 79th st
 Henry S. Oppenheimer, 49 E. 23d st
 Charles C. Osborne, 117 W. 81st st
 William K. Otis, 5 W. 50th st
 Paul E. Outerbridge, 35 W. 53d st
 Henry E. Owen, 40 W. 56th st
 W. H. Oyler, 216 W. 124th st
 Charles W. Packard, 447 Park av
 R. C. M. Page, 31 W. 33d st
 Edmund James Palmer, 1342 Lexington av
 Edwin O. Palmer, 55 E. 72d st
 Charles Inslee Pardee, 6 E. 43d st
 Wm. Hallock Park, 128 W. 11th st
 Mihran B. Parounagian, 149 E. 27th st
 Angenette Parry, Rome, N. Y.
 John Parsons, Kingsbridge
 Ralph L. Parsons, 21 E. 44th st
 Ralph W. Parsons, 21 E. 44th st
 Edward L. Partridge, 19 Fifth av
 F. N. Patterson, 149 E. 34th st
 Abbott Smith Payne, 126 E. 83d st
 Sanders McAllister Payne, 327 Madison av
 Daniel P. Pease, 9 W. 24th st
 Edward Sprague Peck, 53 W. 50th st
 James Pedersen, 29 E. 44th st
 Edward W. Peet, 20 W. 43d st
 Henry T. Pierce, 272 Lexington av
 Louis Peiser, 141 E. 83d st
 Edward W. Perkins, 224 W. 131st st
 Joseph F. Perkins, Sturtevant House
 Ellis Banning Perry, 102 W. 48th st
 John Gardiner Perry, 48 E. 34th st
 Frederick Peterson, 60 W. 50th st
 J. S. Peterson, 116 W. 85th st
 Louis Clark Pettit, Ward's Island
 Alfred G. Pfeiffer, 230 E. 53d st

- Joseph Pfeiffer, 130 E. 62d st
 A. M. Phelps 62 E. 34th st
 Frank Van R. Phelps, 224 Lexington av
 Charles E. Phillips, 32 E. 119th st
 Paul Acherus Phillips, Manhattan State Hospital, Ward's Island
 Wendell C. Phillips, 350 Madison av
 Henry G. Piffard, 256 W. 57th st
 Saml. G. C. Pinckney, Atlanta, Ga.
 Edward Pisko, 151 E. 78th st
 W. O. Plimpton, 19 W. 84th st
 Harry P. Poinset, 301 W. 12th st
 William M. Polk, 7 E. 36th st
 Sigmund Politzer, 64 E. 58th st
 Oren Day Pomeroy, 316 Lexington av
 Thomas R. Pooley, 107 Madison av
 Charles T. Poore, 43 W. 53d st
 W. Evelyn Porter, 50 W. 3d st
 Wm. Henry Porter, 1674 Broadway
 Wm. H. Pond, Westchester
 Seneca D. Powell, 12 W. 40th st
 Adolf Pramann, 251 E. 86th st
 Robert Henry Pretlow, 146 W. 21st st
 John Adolph Price, 88 Second av
 R. L. Pritchard, 115 Broadway
 Wm. B. Pritchard, 105 W. 73d st
 William Rice Pryor, 15 Park av
 W. J. Pulley, 227 E. 86th st
 Alfred E. M. Purdy, 304 Madison av
 Harry Lavington Purdy, 163 E. 71st st
 Harry R. Purdy, 149 Lexington av
 C. R. L. Putnam, 60 Madison av
 Leopold Putzel, 13 E. 57th st
 Charles E. Quimby, 44 W. 36th st
 Francis J. Quinlan, 33 W. 38th st
 Maximilian G. Raefle, 104 E. 25th st
 Henry Rafel, 106 W. 87th st
 Von F. Raitz, 101 W. 132d st
 E. Benjamin Ramsdell, 581 Lexington av
 Geo. Douglas Ramsay, J. Hood Wright Mem. Hosp.
 Ambrose L. Ranney, 345 Madison av
 Charles C. Ransom, 152 W. 48th st
 Samuel Rapp, 350 E. 50th st
 David L. Rauch, 1031 Lexington av
 Godfrey W. Rautenberg, 335 E. 87th st
 A. J. A. Raymond, 230 W. 135th st
 Everett M. Raynor, 182 Willis av
 W. J. Reichmann, 171 E. 111th st
 Robert Grigg Reese, 58 E. 25th st
 Adrian Y. Reid, 104 Lexington av
 John J. Reid, 854 Lexington av
 I. H. Reiley, 168 W. 23d st
 Jonas E. Reinthaler, 76 E. 81st st
 Mary Augusta Requa, 65 W. 52d st
 Frederick T. Reyling, 139 E. 44th st
 Meyer L. Rhein, 38 E. 61st st
 Clarence C. Rice, 123 E. 19th st
 Montrose R. Richard, 77 E. 116th st
 Alfonso A. Richardson, 1187 Madison av
 Charles H. Richardson, 417 Lexington av
 Jennie May Richardson, 56 W. 75th st
 William Richter, 327 Second av
 A. A. Ripperger, 107 E. 116th st
 John Riordon, Ward's Island
 Joseph Cambridge Ritter, 52 Sixth av
 William Cabell Rives, 22 W. 83d st
 Jane Elizabeth Robbins, 95 Rivington st
 Nathan S. Roberts, 129 E. 59th st
 Thomas S. Robertson, 28 E. 20th st
 A. R. Robinson, 248 W. 42d st
 Beverley Robinson, 42 W. 37th st
 Fred C. Robinson, 221 W. 11th st
 Wm. J. Robinson, 119 E. 128th st
 A. D. Rockwell, 113 W. 34th st
 Miron J. Rockwell, 1363 Lexington av
 William H. Rockwell, Jr., 124 W. 78th st
 Louis A. Rodenstein, St. Nicholas av and 155th st
 William A. Rodgers, 816 Lexington av
 Traugott F. M. Roediger, 312 W. 85th st
 Edward H. Rogers, 833 St. Nicholas av
 John Rogers, 48 E. 31st st
 Oscar H. Rogers, 346 Broadway
 Thomas W. Rogers, 113 W. 115th st
 Willard H. Rogers, 225 W. 22d st
 DeWitt C. Romaine, 473 Hudson st
 D. B. St. John Roosa, 20 E. 30th st
 Achilles Rose, 126 E. 29th st
 Louis Rosenbaum, 1458 Lexington av
 E. Rosenberg, 138 W. 85th st
 Julius Rosenberg, 24 W. 59th st
 Max Rosenberg, 124 E. 70th st
 Paul Joseph Rosenheim, 61 E. 64th st
 Max Rosenthal, 134 E. 80th st
 William Ross, 354 W. 24th st
 Henry Roth, 667 E. 135th st
 Ignatz Morvay Rottenberg, 280 Second st
 Julius Rudisch, 121 E. 60th st
 Miriam Runyon, 151 W. 66th st

- Adolph Rupp, 406 W. 34th st
 Ernest F. Ruppe, 427 W. 47th st
 Walter Gohring Ryon, Manhattan
 State Hospital, Ward's Island
 Domingo M. Sabater, 186 W. 45th st
 B. Sachs, 21 E. 65th st
 Nicolaus H. Sachs, 205 E. Broadway
 Charles Walton Sanders, 53 E. 53d st
 Joseph Sanders, 120 E. 64th st
 Joseph Anthony Sanders, 310 W.
 45th st
 Robert Alfred Sands, 39 E. 33d st
 Emil J. Sarlabous, 106 Waverley pl
 F. Le Roy Satterlee, 8 W. 18th st
 Thomas E. Satterthwaite, 47 W.
 47th st
 R. H. Saunders, 134 E. 60th st
 John Sidney Sauvalle, 227 W. 22d st
 Watson Lewis Savage, 308 W. 59th st
 Eugene Coleman Savidge, 66 W.
 50th st
 Josef Saxl, 247 E. 72d st
 Lewis A. Sayre, 285 Fifth av
 Reginald H. Sayre, 235 Fifth av
 A. Schapring, 64 E. 58th st
 Barnim Scharlau, 66 W. 35th st
 Julius Scheider, 187 E. 64th st
 John Wm. Schelpert, 64 W. 96th st
 Philip Scheu, 440 E. 16th st
 Herman J. Schiff, 117 E. 79th st
 Gustavus Schlegel, 315 W. 31st st
 George Schlereth, 56 E. 8th st
 Matilda M. Schlereth, 56 E. 8th st
 Joseph Schmitz, 143 Stanton st
 George Schoeps, 1883 Lexington av
 Warren Schoonover, 115 E. 59th st
 Warren Schoonover, Jr., 115 E.
 59th st
 Charles Schram, 1074 Madison av
 Aimee Raymond Schroeder, 230 W.
 135th st
 Henry H. Schroeder, 230 W. 135th st
 Otto H. Schultz, 166 E. 64th st
 Edward F. Schwedler, 312 W. 34th st
 Max Joseph Schward, 58 E. 112th st
 Fritz Schwyzer, 100 E. 58th st
 Richard Jessup Schofield, 349 W.
 14th st
 George Scott, 102 W. 75th st
 Francis Arthur Scratchley, 8 E.
 34th st
 Harry Hartshorne Seabrook, 118
 E. 72d st
 Louis L. Seaman, 18 W. 31st st
 William Seamans, 120 Broadway
 H. T. Sears, 737 Tremont st, Boston
 Gustav Seligman, 39 E. 72d st
 August Seibert, 114 E. 57th st
 Frederick S. Sellow, 61 E. 79th st
 Isaac M. Seltzer, 118 W. 94th st
 W. M. Seward, 126 E. 86th st
 Walter D. Sewell, Murray Hill Hotel
 Newton M. Shaffer, 28 E. 38th st
 John Rowlands Shannon, 18 W.
 35th st
 Wm. Shannon, 117 W. 81st st
 John Clarence Sharp, 163 E. 116th st
 Frank E. E. Shaw, 2299 Seventh av
 Joseph P. Sheridan, 317 E. 57th st
 A. Josephine Sherman, 26 E. 63d st
 H. Laurence Shively, 145 W. 6th st
 John Byron Shotwell, 220 W. 48th st
 George F. Shrady, 8 E. 66th st
 W. A. Shufelt, 36 W. 21st st
 H. M. Silver, 39 7th st
 Lewis M. Silver, 103 W. 72d st
 Charles E. Simmons, 762 Madison av
 William Kelly Simpson, 952 Lex-
 ington av
 Joseph Simrock, 110 E. 25th st
 H. Marion Sims, 30 W. 58th st
 George W. Smallwood, 104 W.
 84th st
 A. Alexander Smith, 40 W. 47th st
 Andrew H. Smith, 15 E. 38th st
 Charles Smith, 366 Broome st
 Edward Franklin Smith, 257 W.
 44th st
 Franklin Smith, 366 Broome st
 Gouverneur M. Smith, 52 W. 55th st
 Judson C. Smith, 228 E. 19th st
 J. Gardiner Smith, 307 Lenox av
 Samuel Wesley Smith, San Remo
 Hotel
 Jacob Sobel, 1828 Madison av
 Fred. Palmer Solley, 33 W. 53d st
 Frederic E. Sondern, 200 W. 56th st
 Thomas S. Southworth, 47 W. 56th st
 Alfred M. Spalding, 419 W. 145th st
 George A. Spalding, 248 Lenox av
 Warren C. Spalding, 273 Lenox av
 J. H. Spann, 102 W. 74th st
 Louis Spannhake, 244 E. 13th st
 Dwight Seymour Spellman, Ass't
 Phys., Manhattan State Hospital,
 Ward's Island
 Arnot Spence, 70 W. 71st st
 B. Benham Spence, 615 W. 181st st
 E. C. Spitzka, 712 Lexington av
 Homer B. Sprague, 1383 Lexington
 av
 W. P. Sprague, Craig Colony,
 Sonyea, N. Y.
 Chas. G. Sproull, 36 W. 35th st
 Henry S. Starr, 151 E. 72d st
 Moses Allen Starr, 22 W. 48th st
 Henry S. Stearn, 21 E. 44th st
 Thomas L. Stedman, 53 E. 56th st

Whitmore Steele, 825 Park av
 Edwin S. Steese, 157 W. 47th st
 Richard Stein, 811 Lexington av
 Sidney A. Stein, 158 E. 72d st
 Charles H. G. Steinsieck, 501 W.
 146th st

Kate L. S. Sterling, 155 W. 48th st
 Heinrich Stern, 1338 Lexington av
 Lassar Stern, 150 E. 89th st
 Frederick Alexander Sternberg, 414
 E. 50th st

Edwin Sternberger, 640 Madison av
 John A. Steurer, 78 W. 47th st
 George T. Stevens, 33 W. 33d st
 William Stevens, 70 W. 52d st
 Douglas Hunt Stewart, 111 W. 64th
 st

Leopold O. Stieglitz, 58 E. 66th st
 John E. Stillwell, 9 W. 49th st
 Charles W. Stimson, 61 W. 69th st
 Daniel M. Stimson, 11 W. 17th st
 L. A. Stimson, 34 E. 33d st
 G. Mozart Stoeckel, 260 W. 42d st
 William F. Stone, 125 W. 34th st
 William S. Stone, 260 W. 57th st
 William L. Stowell, 28 W. 36th st
 Ludwig Strauss, 211 E. 13th st
 Rosa Welt Strauss, 298 Manhattan av
 J. Watson Stronach, 265 W. 52d st
 Cyrus John Strong, 60 W. 75th st
 Wm. Stubenbord, 219 W. 38th st
 Frederic Russell Sturgis, 16 W. 32d st
 Arnold Sturmdorf, 106 E. 62d st
 Albert T. Swan, 317 E. 18th st
 John H. Swasey, 34 E. 28th st
 Edwin E. Swift, 112 W. 81st st
 George Montague Swift, 20 W. 55th st
 William J. Swift, 40 E. 30th st
 George Knowles Swinburne, 68 W.
 46th st

Brandreth Symonds, 410 W. 20th st
 Parker Syms, 60 W. 47th st
 Paul Gerald Taddiken, Hart's Island
 Robert McLean Taft, 371 West End
 av

Robert Bancker Talbot, 51 (old No.),
 37 (new No.) W. 68th st
 Bernard S. Talmey, 232 E. 78th st
 Max Talmey, 232 E. 78th st
 George W. Talson, 142 W. 13th st
 Wm. A. Taltavall, 2137 Seventh av
 J. Oscroft Tansley, 28 W. 43d st
 C. Fayette Taylor, 117 W. 55th st
 Fielding Lewis Taylor, 173 W. 78d st
 George Ash Taylor, 26 W. 34th st
 Henry Ling Taylor, 117 W. 55th st
 Howard Canning Taylor, 60 W.
 38th st

Robert W. Taylor, 40 W. 21st st

Jacob W. Teechner, 134 E. 61st st
 John S. Thacher, 33 W. 39th st
 John Thelberg, 10 W. 33d st
 Robert H. Theyson, 61 St. Mark's pl
 Allen M. Thomas, 61 W. 54th st
 Theodore Gaillard Thomas, 600
 Madison av

William S. Thomas, 68 W. 52d st
 Edmund Burke Thompson, 48 W.
 76th st

Edward W. Thompson, 302 E. Broad-
 way

George S. Thompson, 36th st and
 9th av

Von Beverhout Thompson, 111 W.
 43d st

W. Gilman Thompson, 34 E. 31st st
 Edgar Steiner Thompson, 16 E. 43d st
 William H. Thomson, 7 W. 56th st
 Josiah Payne Thornley, 119 W. 75th
 st

John Joseph Tierney, 212 E. 109th st
 Wm. J. Tierney, 212 E. 109th st
 Joseph R. Tillinghast, 250 W. 139th
 st

Edward C. Titus, 248 W. 11th st
 Eleanor Tones, 186 E. 30th st
 Byron V. Tompkins, 26 W. 61st st
 Franz J. A. Torek, 699 Madison av
 Sinclair Tousey, 151 W. 76th st
 Frederick M. Townsend, 36 W. 35th
 st

Theodore Irving Townsend, Manhat-
 tan State Hospital, Ward's Island
 Wisner R. Townsend, 28 W. 59th st
 E. Clark Tracy, 27 E. 126th st
 Samuel G. Tracy, 25 W. 55th st
 Henry Tuch, 346 Broadway
 C. P. Tucker, 43 W. 26th st
 Ervin A. Tucker, 110 W. 57th st
 Edward G. Tufts, 30 Oliver st
 Edward Emory Tull, 119 W. 80th st
 Marcus E. Tully, 137 W. 76th st
 Theodore K. Tuthill, 319 W. 18th st
 George Montgomery Tuttle, 49 W.
 38th st

James P. Tuttle, 35 W. 45th st
 Sigmund Tynberg, 321 E. 42d st
 Henry H. Tyson, Jr., 47 W. 51st st
 Sophia Unger, 224 W. 45th st
 William H. Upton, 205 E. 124th st
 Francis Asbury Utter, 103 W. 71st st
 Charles A. Valadier, 130 E. 64th st
 Fred C. Valentine, 242 W. 43d st
 William A. Valentine, 45 W. 35th st
 Francis Valk, 146 E. 37th st
 William W. Van Arsdale, 32 W.
 33d st

George M. Vandegrift, 277 Henry st

- Horace Clare Vandenberg, 126 E. 45th st
 J. Dubois Van Derlyn, 174 E. 71st st
 John Van Der Poel, 36 W. 39th st
 S. O. Van Der Poel, 47 E. 25th st
 Waldron B. Vanderpoel, 106 E. 24th st
 Clinton De Witt Van Dyck, 47 W. 93d st
 Frank Van Fleet, 116 E. 82d st
 James Jasper Plimpton Van Loan, 344 W. 33d st
 Richard Van Santvoord, 106 W. 122d st
 Jefferson Brockner Van Tine, 127 W. 11th st
 W. W. Van Valzah, 10 E. 43d st
 Charles Van Wert, 115 W. 97th st
 Maus R. Vedder, 708 Madison av
 Augusta Vedin, 224 E. 15th st
 Oscar E. Vermilye, 366 W. 27th st
 Hiram N. Vineberg, 127 E. 61st st
 Maria Mitchell Vinton, 515 Lexington av
 William Vissman, 200 W. 139th st
 Antoine P. Voislawsky, 72 St. Mark's pl
 Albert Volkenberg, 64 Rivington st
 Andrew Von Grimm, 36 8th st
 C. A. Von Ramdohr, 45 Irving pl
 Frederick L. Wachenheim, 173 E. 70th st
 Henry John Wackerbarth, 183 Second av
 Clinton Wagner, 19 E. 38th st
 Ralph Waldo, 68 W. 50th st
 Luis Waldstein, 941 Madison av
 Henry F. Walker, 18 W. 55th st
 John B. Walker, 33 E. 33d st
 Samuel Spencer Wallian, 1629 Lexington av
 S. J. Walsh, 25 E. 128th st
 Josephine Walter, 101 W. 75th st
 Luis P. Walton, 73 W. 50th st
 Edwin F. Ward, 29 W. 36th st
 Freeman Ford Ward, 6 E. 58th st
 Francis Raymond Ward, 709 Madison av
 George Gray Ward, 230 W. 59th st
 Thos. Logan Ward, 218 St. Ann's av
 Whitefield Ward, 128 E. 36th st
 Albert William Warden, 118 W. 82d st
 Yeatman Wardlow, 210 W. 56th st
 Edward J. Ware, 121 W. 93d st
 Martin W. Ware, 1198 Lexington av
 Geo. T. Warford, 132 W. 82d st
 Everett S. Warner, 123 E. 25th st
 John W. Warner, 107 E. 72d st
 John Warren, 106 E. 29th st
 John S. Warren, 150 W. 48th st
 Marshall Warren, Tours, France
 M. Claudius Warsaw, 255 W. 52d st
 John W. Warth, 515 Grand st
 Hill Sloane Warwick, 57 W. 126th st
 Wickes Washburn, 21 E. 21st st
 Sigismund Waterman, 165 E. 60th st
 Bertram Howard Waters, 27 W. 86th st
 Robert L. Watkins, 48 W. 37th st
 William S. Watson, 105 W. 47th st
 Robert Watts, 45 W. 36th st
 Robert Watts, Jr., 45 W. 36th st
 Leonard Weber, 25 W. 46th st
 David Webster, 327 Madison av
 Edgar T. Weed, 117 W. 121st st
 John E. Weeks, 46 E. 57th st
 Ludwig Weiss, 77 E. 91st st
 Fanenil D. Weisse, 46 W. 20th st
 Charles Stuart Welles, 1 E. 89th st
 Brooks H. Wells, 71 W. 45th st
 Edmund Charles Wendt, 118 W. 79th st
 James Nephew West, 36 E. 31st st
 N. S. Westcott, 156 W. 12th st
 William Westerfield, 109 W. 123d st
 Albert T. Weston, 226 Central Park W.
 William H. Weston, 400 W. 22d st
 Geo. T. Wetmore, 36 W. 35th st
 John Cambridge Wharton, 669 Fifth av
 Claude Lamont Wheeler, 251 W. 52d st
 George G. Wheelock, 75 Park av
 William E. Wheelock, 13 W. 48th st
 Archibald Campbell White, 106 W. 81st st
 Charles Bell White, 107 W. 72d st
 George R. White, 144 W. 44th st
 Granville Moss White, 272 W. 77th st
 John Blake White, 1013 Madison av
 Octavius A. White, 41 E. 78th st
 Ralph Mozart Whitehead, 363 Lexington av
 Henry H. Whitehouse, 4 E. 37th st
 Fred Whiting, 36 E. 31st st
 Crosby Church Whitman, 166 W. 55th st
 Royal Whitman, Central Park S. (W. 59th st)
 Charles Alvano Whitney, 120 E. 34th st
 Alfred Wiener, 131 W. 77th st
 Joseph Wiener, 1046 Fifth av
 Joseph Wiener, Jr., 65 W. 85th st
 Richard G. Wiener, 48 E. 65th st
 Daniel H. Wiesner, 139 E. 46th st

Fred H. Wiggin, 55 W. 36th st
 Reynold W. Wilcox, 749 Madison av
 Ernest A. W. Wilkins, 588 E. 141st st
 Mark H. Williams, 227 W. 135th st
 Edward Lincoln Williamson, 105 W. 74th st
 F. W. Wilson, 24 W. 50th st
 Gustavus S. Winston, 42 W. 39th st
 Joseph E. Winters, 25 W. 37th st
 Lazarre Wischnewetzky, 334 Fifth av
 Rudolph A. Witthaus, 303 W. 77th st
 A. J. Wittson, 141 E. 83d st
 Justin Wohlfarth, 32 W. 128th st
 Henry J. Wolf, 131 W. 126th st
 Augustin A. Wolfe, 226 E. 52d st
 Max Wolper, 189 Henry st
 Benjamin Wood, Jr., 846 E. 165th st
 Halsey Lathrop Wood, 116 W. 129th st
 William Benjamin Wood, 24 E. 41st st
 William Edwin Woodend, Hotel St. Andrews

John Woodman, 123 E. 25th st
 George Woolsey, 117 E. 36th st
 Willard Parker Woster, 203 W. 81st st
 John P. Wright, 317 East 82d st
 Peter B. Wyckoff, 23 W. 57th st
 Robert Hawthorne Wylie, 36 W. 35th st
 W. Gill Wylie, 28 W. 40th st
 Gerardus H. Wynkoop, 128 Madison av
 Leroy Milton Yale, 432 Madison av
 J. V. D. Young, 108 W. 75th st
 George S. Youngling, 453 W. 34th st
 F. S. Zabriskie, 54 W. 50th st
 Adolph Zederbaum, 1528 Lincoln av, Denver, Col.
 Adolph Zeh, 243 W. 52d st
 A. P. Zemansky, 862 Lexington av
 Max Armand Zisper, 714 E. 5th st
 Vincent Zolonowski, 33 W. 16th st
 Bernard Zweighaft, 104 W. 71st st

Number of Members, 1503.

Deceased: Frank Abbott, April 20, 1897; Charles H. Avery, November 2, 1897; Thomas S. Bahan, April 6, 1897; James P. J. Daly, October 15, 1897; John Dwyer, March 21, 1898; George H. Humphreys, April 15, 1898; Thomas T. Janeway, January 15, 1897; Louis F. Kiefer, July 23, 1897; Ellen C. Liggett, January 18, 1897; Wm. G. Lusk, June 12, 1897; George W. Leonard, April 16, 1898; Sumner A. Mason, March 12, 1897; James A. McLochlin, July 16, 1897; Joseph O'Dwyer, January 18, 1898; Edward C. Seguin, February 19, 1898; Russell A. Strachan, March 1, 1898; Chas. F. Steiger, March 2, 1897; Alexander W. Stein, December 5, 1897; Ralph E. Swinburn, February 14, 1897; Walter S. Willis, March 4, 1897.

NEW YORK ACADEMY OF MEDICINE.

(Instituted January 6, 1847. Incorporated June 28, 1851.)

MEETINGS.—Stated, first and third Thursday in every month, from the first Thursday in October to the first Thursday in June, inclusive, at 8 P.M., at 17 W. Forty-third Street, New York; nomination of officers, first Thursday in December; election, third Thursday in December. Library open free to the public from 10 A.M. to 6 P.M., to members from 10 A.M. to 10 P.M.; in summer, 10 A.M. to 6 P.M. Physicians in active practice for the three years preceding application, and residents of the State of New York, are eligible for Resident Fellowship. Surgeons in the U. S. Army, Navy, or Marine-Hospital Service, and physicians residing in other States, are eligible for Non-resident Fellowship.

Officers. (January, 1898.)

E. G. Janeway, *President*.
 Egbert H. Grandin, Everett Herrick, W. H. Katzenbach, *Vice-Presidents*.
 Louis F. Bishop, *Recording Secretary*.
 M. Allen Starr, *Corresponding Secretary*.
 Henry E. Crampton, *Treasurer*.
 Adoniram B. Judson, *Statistical Secretary*.
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Delegates to State Medical Society :

William S. Gottheil, Joseph Collins, Reginald H. Sayre,
 Ralph L. Parsons, Charles H. Richardson.

Resident Fellows. (June, 1898.)

(Where no town is mentioned New York City is to be understood.)

Robert Abbe, 11 W. 50th st	George Bayles, Orange, N. J.
Alpheus E. Adams, Newburg, N. Y.	Carl Beck, 37 E. 31st st
Calvin T. Adams, 21 E. 28th st	Sarah Belcher, 129 W. 74th st
Isaac Adler, 12 E. 60th st	Christopher M. Bell, 320 5th av
David H. Agan, 1074 Lexington av	J. Findley Bell, East Hampton
Samuel Alexander, 5 W. 58th st	Albert C. Benedict, Yonkers, N. Y.
W.T. Alexander, 940 St. Nicholas av	T. Passmore Berens, 101 Park av
L. A. W. Alleman, 64 Montague st,	Henry W. Berg, 24 57th st
Brooklyn, N. Y.	Augustus E. Bieser, 256 W. 54th st
Charles W. Allen, 126 E. 60th st	George Bieser, 186 W. 102d st
Thomas H. Allen, 1674 Broadway	George P. Biggs, 5 W. 58th st
James H. Anderson, 30 University pl	Herman M. Biggs, 5 W. 58th st
Wm. B. Anderton, 34 W. 47th st	C. E. Billington, 85 Madison av
Samuel T. Armstrong, New Rochelle	Louis F. Bishop, 30 W. 36th st
Wm. L. Armstrong, 24 W. 36th st	Joseph B. Bissell, 15 W. 8th st
Moses Aronson, 101 7th st	Joseph A. Bake, 3 W. 68th st
Jacob H. Asch, 770 Lexington av	Frank J. Blodgett, 140 W. 72d st
Morris J. Asch, 5 W. 30th st	Edward A. Bogue, 63 W. 48th st
John Apell, 357 W. 56th st	Herman J. Boldt, 54 W. 1st st
August Assenheimer, 323 E. 51st st	Burton S. Booth, Troy
Edward A. Ayers, 8 E. 34th st	J. Arthur Booth, 46 W. 49th st
Gorham Bacon, 63 W. 54th st	Rudolph O. Born, 23 W. 35th st
Pearce Bailey, 60 W. 50th st	Francke H. Bosworth, 41 Park av
A. Brayton Ball, 42 W. 36th st	Frank A. Bottome, 218 Lenox av
Wm. Balser, 218 E. 13th st	Fred J. Bowles, 154 W. 93d st
Wm. L. Baner, 38 W. 40th st	C. Cole Bradley, 51 W. 50th st
L. Bolton Bangs, 31 E. 44th st	Edward Bradley, 19 W. 30th st
Garret N. Banker, 1648 Madison av	Elizabeth N. Bradley-Bystrom, 147
Elbert A. Banks, 70 W. 35th st	Warren st, Brooklyn, N. Y.
Justin L. Barnes, 16 E. 43d st	Laban L. Bradshaw, 41 E. 72d st
Charles C. Barrows, 8 W. 36th st	John W. Brannan, 11 W. 12th st
Josiah W. Barstow, 6 E. 9th st	James A. Breakell, 249 W. 52d st
John L. Barton, 57 E. 55th st	Arthur B. Breese, Syracuse
Simon Baruch, 51 W. 70th st	Joseph Brettauer, 45 E. 64th st
J. N. Bassett, Jr., Canton, N. Y.	George E. Brewer, 68 W. 46th st
Wm. H. Bates, 50 E. 64th st	Charles K. Briddon, 13 E. 33d st

Nathan E. Brill, 125 W. 77th st
E. L. Macomb Bristol, 113 E. 18th st
Fred. J. Brockway, 183 W. 73d st
Edward B. Bronson, 123 W. 84th st
G. Frederick Brooks, 272 W. Boulevard

Abram Brothers, 162 Madison av
Le Roy Broun, 70 W. 82d st
Walter B. Brouner, 256 W. 12th st
Charles H. Brown, 25 W. 45th st
Dillon Brown, 40 E. 57th st
F. Tilden Brown, 14 E. 58th st
Willet S. Brown, Flushing, L. I., N. Y.

Charles E. Bruce, 456 Lexington av
Albert F. Brugman, Hotel Endicott
Edward F. Brush, Mt. Vernon, N. Y.
Joseph D. Bryant, 54 W. 36th st
L. Duncan Bulkley, 4 E. 37th st
Charles S. Bull, 47 W. 36th st
Wm. T. Bull, 35 W. 35th st
Wm. E. Bullard, 113 E. 40th st
Wm. M. Bullard, 302 Madison av
T. Hamilton Burch, 68 W. 45th st
Martin Burke, 147 Lexington av
Wm. J. Burnett, Long Island City, N. Y.

Frederick A. Burrall, 48 W. 17th st
Stephen S. Burt, 37 W. 32d st
Charles S. Bushong, 49 W. 19th st
G. R. Butler, 229 Gates av, Brooklyn
John Byrne, 314 Clinton st, Brooklyn

Caroline A. Cabot, 126 W. 48th st
John Cabot, 126 W. 48th st
Augustus Caille, 753 Madison av
Peter A. Callan, 35 W. 38th st
Edward M. Cameron, 22 W. 47th st
Donald M. Cammann, 19 E. 33d st
Archibald M. Campbell, Mt. Vernon, N. Y.

Wm. C. Campbell, 42 W. 49th st
George F. Carey, 142 E. 19th st
Stuart B. Carlisle, Mt. Vernon, N. Y.
Charles C. Carmalt, 40 E. 58th st
Albro R. Carman, 27 W. 127th st
Elon N. Carpenter, 120 E. 34th st
Walter L. Carr, 68 W. 51st st
Joseph S. Carreau, 18 W. 21st st
De Lancey Carter, 1030 Park av
J. H. Carver, 41 E. 33d st
Frederick A. Castle, 51 W. 58th st
Charles M. Cauldwell, 16 W. 54th st
Porter F. Chambers, 450 Madison av
Charles F. Chandler, 41 E. 49th st
Frank W. Chapin, 122 W. 58th st
Fred'k W. Chapin, 102 W. 44th st
Henry D. Chapin, 51 W. 51st st
Walter F. Chappell, 7 E. 55th st

Jean F. Chauveau, 31 W. 60th st
Jean F. Chauveau, Jr., 216 W. 103d st

Timothy M. Cheesman, 46 E. 29th st
William S. Cheesman, Auburn, N. Y.
Charles H. Chetwood, 109 E. 34th st
John H. Clairborne, Jr., 39 W. 36th st

L. Pearce Clark, Sonyea
Wm. Brewster Clark, 50 E. 31st st
Margaret A. Cleaves, 79 Madison av
Clement Cleveland, 59 W. 38th st
T. W. Cleaveland, 45 W. 50th st
Cornelius G. Coakley, 126 E. 45th st
Henry C. Coe, 27 E. 64th st
George H. Cocks, 1986 Madison av
Lewis A. Coffin, 145 W. 12th st
Henry Coggeshall, 102 E. 57th st
Felix Cohn, 38 E. 60th st
Carter S. Cole, 122 W. 73d st
William B. Coley, 5 Park av
Howard D. Collins, 119 E. 35th st
Joseph Collins, 47 W. 38th st
Stacy B. Collins, Philadelphia, Pa.
Herman L. Collyer, 109 E. 54th st
Frank Combes, 220 E. 112th st
George F. Comstock, Saratoga Spgs
Stephen G. Cook, 111 W. 12th st
J. Leonard Corning, 53 W. 38th st
Edwin M. Cox, 38 W. 34th st
Edwin B. Cragin, 62 W. 50th st
Henry E. Crampton, 133 W. 123d st
Floyd M. Crandall, 113 W. 95th st
George W. Crary, 22 W. 55th st
James K. Crook, 36 E. 29th st
Andrew F. Currier, 120 E. 34th st
Charles G. Currier, 313 W. 102d st
B. Farquhar Curtis, 7 E. 41st st
H. Holbrook Curtis, 118 Madison av
Elizabeth M. Cushier, 53 E. 20th st
William F. Cushman, 325 W. 22d st
Condict W. Cutler, 135 W. 76th st
Alexander Dallas, Bayonne, N. J.
Charles L. Dana, 50 W. 46th st
S. W. Dana, 162 W. 94th st
Albert A. Davis, 119 E. 62d st
R. C. Davis, 150 E. 128th st
Robt. H. M. Dawbarn, 105 W. 74th st
Wm. B. De Darro, 56 W. 36th st
Francis Delafield, 12 W. 32d st
D. Bryson Delavan, 1 E. 33d st
Edward B. Dench, 17 W. 46th st
Chas. E. Denhard, 197 Edgecomb av
Frederic S. Dennis, 542 Madison av
Emmet C. Dent, Asylum for Insane, Female Dept., Ward's Island
Richard H. Derby, 9 W. 35th st
Leonard A. Dessar, 23 W. 53d st
S. Henry Dessau, 144 W. 85th st

- Robert J. Devlin, 156 W. 13th st
J. Harvey Dew, 252 W. 54th st
A. Britton Deynard, 333 W. 51st st
R. L. Dickinson, 145 Clinton st,
Brooklyn
F. H. Dillingham, 76 W. 85th st
George A. Dixon, 15 W. 49th st
William G. Dobson, Poughkeepsie
Frederick E. d'Oench, 12 E. 28th st
W. E. Dold, White Plains, N. Y.
Edward J. Donlin, 129 W. Houston st
John Dorning, 252 W. 25th st
Alvah H. Doty, Quarantine Station,
Staten Island, N. Y.
Jas. S. Doubleday, Bay Shore
Henry B. Douglas, 121 E. 36th st
Orlando B. Douglas, 123 E. 36th st
Charles N. Dowd, 135 W. 73d st
William H. Draper, 19 E. 47th st
William K. Draper, 33 W. 39th st
A. Palmer Dudley, 678 Madison av
E. K. Dunham, 338 E. 26th st
T. Dunham, 126 E. 34th st
Ghislani Durant, 12 W. 46th st
George M. Edebohls, 59 W. 49th st
James C. Edgar, 50 E. 34th st
Paul Ehrhart, 313 W. 30th st
Max Einhorn, 20 E. 63d st
Ellsworth Elliot, 48 W. 36th st
George R. Elliott, 48 W. 26th st
Charles A. Elsberg, 137 E. 57th st
Albert Heman Ely, 47 W. 56th st
William S. Ely, Rochester, N. Y.
J. H. Emerson, 81 Madison av
J. B. Emmerson, 20 E. 30th st
Z. Taylor Emery, 481 Washington
av, Brooklyn
Bache McE. Emmet, 18 E. 30th st
Thomas A. Emmet, 89 Madison av
John F. Erdman, 149 W. 44th st
James Ewing, 260 W. 74th st
W. A. Ewing, 134 W. 58th st
Henry A. Fairbairn, 249 McDon-
ough st, Brooklyn
George W. Faller, Oyster Bay
J. O. Farrington, 1991 Madison av
Wm. H. Farrington, Astor House,
Broadway and Vesey st
Frank Ferguson, 20 W. 38th st
James F. Ferguson, 168 Lexington
av
Jose M. Ferrer, 441 Park av
Albert W. Ferris, 12 E. 47th st
C. G. J. Finn, Hempstead, N. Y.
Edward D. Fisher, 42 W. 45th st
Louis Fisher, 187 Second av
James P. Fiske, 328 W. 57th st
Arthur Lyman Fisk, 13 W. 50th st
Allen Fitch, 152 W. 34th st
Chas. B. Fitzpatrick, 76 Rush st,
Brooklyn
M. J. Fleming, 132 Lexington av
Austin Flint, Jr., 18 E. 45th st
Francis Foerster, 39 W. 52d st
Willis E. Ford, Utica, N. Y.
John A. Fordyce, 66 Park av
Frank P. Foster, 16 E. 31st st
George V. Foster, 109 E. 18th st
Edward P. Fowler, 38 W. 40th st
George B. Fowler, 18 E. 58th st
George R. Fowler, 302 Washington
av, Brooklyn
George H. Fox, 18 E. 31st st
Edward Frankel, 217 E. 17th st
Henry W. Frauenthal, 214 E. 50th st
George C. Freeborn, 215 W. 70th st
Rowland G. Freeman, 205 W. 57th st
Thos. R. French, 150 Joralemon st,
Brooklyn
W. Freudenthal, 1003 Madison av
Albert H. Friedenberg, 38 E. 61st st
Edward Fridenberg, 242 Lenox av
David Froehlich, 117 E. 80th st
Richard Frothingham, 19 E. 38th st
J. Henry Fruitnight, 161 W. 57th st
Jacob Fuhs, 286 Jefferson av, Brook-
lyn
Eugene Fuller, 252 Lexington av
Robert M. Fuller, 136 W. 42d st
Anna M. Galbraith, 123 W. 71st st
A. Ernest Gallant, 60 W. 56th st
Jasper J. Garmany, 40 W. 40th st
Henry J. Garrigues, 716 Lexington
av
Arpad G. Gerster, 34 E. 75th st
Virgil P. Gibney, 16 Park av
Chas. Langdon Gibson, 46 W. 33d st
Wm. Gilfillan, 98 Remsen st, Brook-
lyn, N. Y.
W. W. Gilfillan, 24 W. 59th st
Walter R. Gillette, 24 W. 40th st
Francis Ginnasi, 118 Macdougall st
John H. Girdner, 31 W. 45th st
Wm. Stanton Glasson, Newburg, N.
Y.
Jos. W. Gleitsmann, 46 E. 25th st
Augustus H. Goelet, 108 W. 73d st
J. Riddle Goffe, 22 E. 35th st
Herman Goldenberg, 50 E. 58th st
David H. Goodwillie, 154 W. 34th st
Bernard Gordon, 152 Henry st
Orren A. Gorten, Sherburne, N. Y.
William S. Gottheil, 144 W. 48th st
Egbert H. Grandin, 36 E. 58th st
Wm. D. Granger, Bronxville, N. Y.
Frank Grauer, 323 W. 46th st
Landon Carter Gray, 6 E. 49th st
Robert H. Greene, 47 W. 38th st

W. F. Green, Mt. Vernon
 E. Harrison Griffin, 112 W. 45th st
 Henry A. Griffin, 37 W. 52d st
 Henry Griswold, 42 W. 35th st
 Emil Gruening, 109 E. 23d st
 Raymon Guiteras, 23 W. 53d st
 Jonas Guttman, 338 E. 4th st
 Fred W. Gwyer, 332 Lexington av
 Alexander Hadden, 155 E. 51st st
 Edwards Hall, 17 E. 66th st
 William H. Hall, 129 E. 54th st
 Lucy Hall-Brown, 158 Montague st,
 Brooklyn

Silas F. Hallock, 26 E. 54th st
 F. Spencer Halsey, 123 W. 69th st
 Graeme M. Hammond, 58 W. 45th st
 H. A. Haubold, 140 E. 72d st
 Horace T. Hanks, 766 Madison av
 Thomas J. Harris, 117 E. 40th st
 Daniel Harrison, Whitestone, N. Y.
 George T. Harrison, 221 W. 23d st
 Forbes Hawkes, 42 E. 26th st
 James R. Hayden, 107 W. 55th st
 Irving S. Haynes, 1125 Madison av
 W. Sumner Hayward, Rochester,
 N. Y.

Henry C. Hazen, 66 W. 56th st
 Henry Heiman, 220 E. 116th st
 Henry N. Heinemann, 56 W. 56th st
 Louis Heitzman, 39 W. 45th st
 J. Julio Hennar, 8 W. 40th st
 Neil J. Hepburn, 317 W. 23d st
 Edgar M. Hernance, Yonkers, N. Y.
 Justin Herold, 173 E. 80th st
 Everett Herrick, 126 Madison av
 Christian A. Herter, 839 Madison av
 Emil Heuel, 352 Willis av
 Franz Heuel, Jr., 26 Irving pl
 Thomas J. Hillis, 51 Charlton st
 Alfred K. Hills, 669 Fifth av
 Joseph H. Hinton, 41 W. 32d st
 Joseph G. Hiron, 131 W. 136th st
 Urban G. Hitchcock, 51 W. 29th st
 Eugene Hodenpyl, 437 W. 59th st
 Abbott Hodgman, 141 E. 38th st
 Edward J. Hogan, 308 Madison av
 W. A. Holden, 45 W. 39th st
 Oscar H. Holder, 27 W. 44th st
 Thomas H. Holgate, 206 W. 14th st
 Austin W. Hollis, 111 W. 47th st
 L. Emmett Holt, 14 W. 55th st
 Oscar P. Honegger, 171 E. 71st st
 George G. Hopkins, 350 Washington
 av, Brooklyn, N. Y.

George W. Hosmer, Brunswick, Ga.
 H. Seymour Houghton, 301 W. 88th
 st
 Robert T. Howe, Mt. Vernon, N. Y.
 John T. Howell, Newburg, N. Y.

Dwight L. Hubbard, 117 W. 93d st
 Leroy W. Hubbard, 68 W. 35th st
 S. Dana Hubbard, 143 W. 103d st
 Wm. N. Hubbard, 19 E. 38th st
 Francis Huber, 209 E. 17th st
 John B. Huber, 72 W. 47th st
 Joseph Huber, Jr., 113 E. Broadway
 John H. Huddleston, 126 W. 85th st
 Joseph J. Hull, 64 W. 35th st
 Dwight W. Hunter, 233 Madison av
 George T. Hunter, 332 W. 33d st
 Frederick E. Hyde, 20 W. 53d st
 John A. Irwin, 14 W. 29th st
 Frank L. Ives, 117 E. 30th st
 Frank W. Jackson, 12 W. 18th st
 George T. Jackson, 14 E. 31st st
 Victor Hugo Jackson, 240 Lenox av
 Abraham Jacobi, 110 W. 34th st
 Mary Putnam Jacobi, 110 W. 34th st
 Nathan Jacobson, Syracuse, N. Y.
 Arthur M. Jacobus, 260 W. 57th st
 George W. Jacoby, 663 Madison av
 Walter B. James, 31 W. 54th st
 Edward G. Janeway, 36 W. 40th st
 Joseph E. Janvrin, 191 Madison av
 George W. Jarman, 61 W. 74th st
 Charles Jewett, 330 Clinton av,
 Brooklyn, N. Y.

James H. Jolliffe, 105 W. 86th st
 Charles N. D. Jones, 502 W. 142d st
 Israel C. Jones, Fordham, N. Y.
 S. Seabury Jones, 712 Madison av
 Adoniram B. Judson, 1 Madison av
 Champion H. Judson, Dobb's Ferry,
 N. Y.

Kenneth F. Junor, 323 W. 28th st
 Moses S. Kakales, 814 Lexington av
 Richard Kalish, 36 W. 47th st
 Fred Kammerer, 667 Madison av
 Wm. H. Katzenbach, 17 W. 45th st
 Thomas J. Kearney, 155 Lexington
 av

Theodore H. Kellogg, Riverdale
 lane

James Edward Kelly, 117 E. 59th st
 Charles B. Kelsey, 18 E. 29th st
 Robert C. Kemp, 444 Park av
 William M. Kemp, 151 W. 71st st
 J. T. Kennedy, 107 E. 29th st
 Samuel Ketch, 72 W. 55th st
 Edward L. Keyes, 109 E. 34th st
 Eleanor B. Kilham, 2 Livingston pl
 Reuel B. Kimball, 24 E. 41st st
 Francis P. Kinnicutt, 42 W. 37th st
 John S. Kirkendall, Ithaca, N. Y.
 Herman G. Klotz, 42 E. 22d st
 Arnold H. Knapp, 26 W. 40th st
 Herman Knapp, 26 W. 40th st
 John B. Knapp, 62 W. 51st st

- G. S. Knickerbocker, 145 W. 128th st
 Charles H. Knight, 147 W. 57th st
 George Knipe, 353 W. 24th st
 S. A. Knopf, 955 Madison av
 Samuel Kohn, 805 Madison av
 Karl Koller, 715 Madison av
 Henry Koplik, 66 E. 58th st
 Carl F. Kremer, 112 E. 57th st
 Florian Krug, 13 E. 41st st
 Louis J. Ladinski, 248 E. Broadway
 L. E. La Petra, 23 W. 37th st
 Alexander Lambert, 125 E. 36th st
 Edward W. Lambert, 2 E. 37th st
 Samuel W. Lambert, 110 E. 35th st
 Walter E. Lambert, 8 W. 35th st
 Fred. E. Lange, 130 E. 61st st
 Gustav Langmann, 121 W. 57th st
 Boleslaw Lapowski, 28 W. 59th st
 James R. Latham, 131 W. 11th st
 Louis N. Lanehart, Hempstead, N. Y.
 Charles A. Leale, 604 Madison av
 Wm. G. Le Boutillier, 49 W. 50th st
 Moses D. Lederman, 128 E. 60th st
 Egbert Le Fevre, 52 W. 56th st
 George M. Lefferts, 212 Madison av
 Simeon N. Leo, 103 W. 55th st
 Zenas L. Leonard, 326 E. 116th st
 Adolph M. Lesser, 19 E. 61st
 Wm. M. Leszynsky, 56 E. 58th st
 Fred. J. Levisieur, 640 Madison av
 Maurice J. Lewi, 5-11 Broadway
 David C. Lewinthal, 157 Henry st
 Charles H. Lewis, 28 W. 61st st
 Daniel Lewis, 252 Madison av
 Frank N. Lewis, 33 W. 36th st
 Robert Lewis, Jr., 14 E. 45th st
 Fred. W. Lilienthal, 306 E. 15th st
 Howard Lilienthal, 679 Madison av
 Rufus P. Lincoln, 22 W. 31st st
 Charles I. Lindley, 121 Madison av
 Frieda E. Lippert, 53 Washington st S.
 Samuel Lloyd, 24 W. 50th st
 A. V. B. Lockrow, 7th av and 122d st
 Chas. E. Lockwood, 60 W. 38th st
 George R. Lockwood, 44 W. 49th st
 Henry P. Loomis, 58 E. 34th st
 William C. Lusk, 47 E. 34th st
 Patrick J. Lynch, 216 E. 13th st
 George S. Lynde, 326 W. 45th st
 S. B. Lyon, White Plains, N. Y.
 Samuel K. Lyon, 45 E. 59th st
 J. Milton Mabbott, 19 Fifth av
 D. Hunter McAlpin, 9 E. 55th st
 Charles McBurney, 28 W. 37th st
 John A. McCorkle, 149 Clinton st, Brooklyn, N. Y.
 Andrew J. McCosh, 22 E. 56th st
 Peter J. McCour, 233 W. 23d st
 J. A. McCreery, 20 E. 54th st
 Alexander E. McDonald, Ward's Island
 George A. McDonald, 31 E. 67th st
 T. J. McGillicuddy, 776 Madison av
 E. L. H. McGinnis, 329 Amsterdam av
 J. P. McGowan, 20 E. 29th st
 Ferdinand S. McHale, 317 E. 87th st
 William McKay, 40 E. 10th st
 James F. McKernon, 116 W. 48th st
 W. Duncan McKim, 33 W. 20th st
 James W. McLane, 51 W. 38th st
 Malcolm McLean, 21 E. 126th st
 Samuel B. W. McLeod, 247 W. 23d st
 John B. McMahon, 325 Lexington av
 Nath. G. McMaster, 322 E. 15th st
 George McNaughton, 1 Cambridge place, Brooklyn, N. Y.
 Sarah J. McNutt, 265 Lexington av
 W. A. Macy, Willard State Hospital, Willard, N. Y.
 Jas. J. E. Maher, 34 W. 25th st
 P. A. Malleson, 2014 Fifth av
 Henry A. Mandeville, 44 Broadway
 Morris Mangs, 941 Madison av
 Thomas H. Manley, 115 W. 49th st
 John Mann, Jericho
 Francis H. Markoe, 15 E. 49th st
 James W. Markoe, 42 E. 35th st
 Matthew D. Mann, Buffalo
 Thomas M. Markoe, 500 Madison av
 Wilbur B. Marple, 20 W. 31st st
 Simon Mark, 947 Madison av
 Charles Mason, Peekskill
 Lewis D. Mason, 171 Joralemon st, Brooklyn, N. Y.
 R. Osgood Mason, 348 W. 58th st
 Charles H. May, 692 Madison av
 Calvin S. May, 205 W. 57th st
 Abraham Mayer, 40 E. 60th st
 Emil Mayer, 25 E. 77th st
 S. J. Meltzer, 66 E. 124th st
 Walter Mendelson, 159 W. 74th st
 Frank W. Merriam, 136 W. 11th st
 Alfred Meyer, 801 Madison av
 Willy Meyer, 700 Madison av
 George Meyers, 47 E. 61st st
 L. M. Michaelis, 1090 Lexington av
 Robert Millbank, 154 W. 48th st
 John C. Minor, 10 E. 41st st
 Ramon L. Miranda, 116 W. 64th st
 H. W. Mitchell, 747 Madison av
 Wm. F. Mittendorf, 140 Madison av
 Henry Moeller, 240 W. 38th st
 Henry Moffat, Yonkers, N. Y.

S. H. Monell, 865 Union st, Brooklyn, N. Y.

W. Oliver Moore, 42 E. 29th st
Benjamin Morje, 181 E. 71st st
Evert M. Morrell, 1 Madison av
Lewis R. Morris, 35 W. 36th st
Robert T. Morris, 49 W. 39th st
P. A. Morrow, 66 W. 40th st
W. Golden Mortimer, 504 W. 146th st
William J. Morton, 19 E. 28th st
Henry M. Morton, 40 Schermerhorn st, Brooklyn

Paul F. Mundé, 20 W. 45th st
John P. Munn, 18 W. 58th st
George E. Munroe, 43 E. 33d st
Frank W. Murray, 32 W. 39th st
Robert A. Murray, 112 W. 80th st
T. Halsted Myers, 24 W. 50th st
Robert C. Myles, 46 W. 38th st
Joseph D. Nagel, 61 W. 35th st
John T. Nagle, 47 E. 21st st
Charles E. Nammack, 42 E. 29th st
George C. Needham, 218 E. 19th st
William B. Neffelt, 16 E. 48th st
James R. Nelson, 456 Lexington av
Albert S. Newcomb, 206 W. 71st st
James E. Newcomb, 118 W. 69th st
James A. Nichols, 133 W. 34th st
James E. H. Nichols, 4 E. 43d st
Truman Nichols, 267 E. Broadway
Curt E. H. Nicolai, 81 W. 119th st
Henry D. Nicoll, 51 E. 57th st
Jonas R. Nilsen, 69 W. 50th st
James D. Nisbet, 10 E. 43d st
John G. Noble, 222 W. 34th st
Henry S. Norris, 123 W. 34th st
J. Harper North, Jr., Union Club
William P. Northrup, 57 E. 79th st
Henry D. Noyes, 233 Madison av
W. B. Noyes, 162 W. 73d st
Robert Offenbach, 825 Lexington av
Nathan Oppenheim, 50 E. 79th st
Henry S. Oppenheimer, 16 E. 32d st
Daisy M. Orleman, Peekskill
Fessenden N. Otis, 5 W. 50th st
William K. Otis, 5 W. 50th st
Charles W. Packard, 447 Park av
R. Channing M. Page, 31 W. 33d st
Charles I. Pardee, 6 E. 43d st
Roswell Park, Buffalo, N. Y.
W. H. Park, 128 W. 11th st
Angenette Parry, Rome, N. Y.
John Parsons, Kingsbridge, N. Y.
Ralph L. Parsons, Sing Sing, N. Y.
Ralph W. Parsons, Sing Sing, N. Y.
Edward L. Partridge, 19 Fifth av
Frank N. Patterson, 149 E. 34th st
S. M. Payne, 327 Madison av
George L. Peabody, 57 W. 38th st

Daniel P. Pease, Hoffman House
Charles H. Peck, 10 W. 38th st
Edward S. Peck, 53 W. 50th st
Grace Peckham-Murray, 48 W. 52d st

James Pedersen, 29 E. 44th st
Edward W. Peet, 20 W. 43d st
Louis C. Pettit, Ward's Island
James L. Perry, 76 W. 47th st
John G. Perry, 48 E. 34th st
Frederick Peterson, 60 W. 50th st
Alfred G. Pfeiffer, 236 E. 53d st
Abel M. Phelps, 62 E. 34th st
Charles Phelps, 34 W. 37th st
Wendell C. Phillips, 350 Madison av
Henry G. Piffard, 256 W. 57th st
William M. Polk, 7 E. 36th st
John O. Polak, 287 Clinton av, Brooklyn, N. Y.

Sigismund Pollitzer, 64 E. 58th st
Oren D. Pomeroy, 316 Lexington av
Thomas R. Pooley, 107 Madison av
W. Evelyn Porter, 50 W. 33d st
W. E. Porter, 50 W. 33d st
Wm. Henry Porter, 1674 Broadway
J. L. H. Porteous, Yonkers, N. Y.
Wm. B. Pritchard, 105 W. 73d st
Jonathan Pritchard, 105 W. 73d st
Jonathan S. Prout, 26 Schermerhorn st, Brooklyn, N. Y.

T. Mitchell Prudden, 160 W. 59th st
William R. Pryor, 121 E. 38th st
W. J. Pulley, 227 E. 86th st
Alfred E. M. Purdy, 304 Madison av
Samuel S. Purple, 36 W. 22d st
Leopold Putzel, 13 E. 57th st
Patrick H. Pyne, Yonkers, N. Y.
John D. Quackenbos, 331 W. 28th st
Charles E. Quimby, 44 W. 36th st
Francis J. Quinlan, 33 W. 38th st
Edward Quintard, 145 W. 58th st
Ambrose L. Ranney, 348 Madison av
Charles C. Ransom, 152 W. 48th st
Leonard S. Rau, 72 W. 55th
F. C. Raynor, 163 Clinton st, Brooklyn, N. Y.

John J. Reid, 853 Lexington av
Meyer L. Rhein, 38 E. 61st st
A. C. Rhoades, Colorado Springs, Col.

Clarence C. Rice, 123 E. 19th st
M. R. Richards, 77 E. 116th st
C. H. Richardson, 417 Lexington av
John E. Richardson, 127 S. Oxford st, Brooklyn

Frederick C. Riley, 138 Madison av
Nathan S. Roberts, 129 E. 59th st
Andrew R. Robinson, 248 W. 42d st
Beverley Robinson, 42 W. 37th st

- Thomas M. Rochester, 2 St. James place, Brooklyn, N. Y.
 Alphonso D. Rockwell, 113 W. 34th st
 L. A. Rodenstein, 908 St. Nicholas av
 John O. Roe, Rochester
 Oscar H. Rogers, 346 Broadway
 Willard H. Rogers, 225 W. 22d st
 D. B. St. John Roosa, 20 E. 30th st
 Achilles Rose, 126 E. 29th st
 Alvah Rowe, 336 W. 51st st
 Julius Rudisch, 121 E. 60th st
 Adolph Rupp, 406 W. 34th st
 Edward C. Rushmore, Tuxedo Park
 Bernard Sachs, 21 E. 65th st
 Robert A. Sands, 39 E. 33d st
 F. Leroy Satterlee, 8 W. 18th st
 Thos. E. Satterthwaite, 47 W. 47th st
 Eugene C. Savidge, 66 W. 50th st
 Lewis A. Sayre, 285 Fifth av
 Reginald H. Sayre, 285 Fifth av
 Barnim Scharlau, 66 W. 35th st
 John Schmidt, 233 E. 13th st
 J. Carl Schmuck, Lawrence, N. Y.
 C. P. R. Schoenemann, 156 E. 38th st
 Gustav Scholer, 311 W. 48th st
 Charles Schram, 1074 Madison av
 George Scott, 102 W. 75th st
 Henry H. Seabrook, 118 E. 72d st
 Louis L. Seaman, 18 W. 31st st
 William S. Seamans, 16 W. 52d st
 Gustav Seligman, 39 E. 72d st
 August Seibert, 114 E. 57th st
 Edward H. M. Sell, 137 W. 94th st
 Frederick S. Sellew, 61 E. 79th st
 Newton M. Shaffer, 28 E. 38th st
 Wm. H. Sherman, Yonkers
 Samuel Sherwell, 33 Schermerhorn st, Brooklyn, N. Y.
 George F. Shrady, 8 E. 66th st
 Albert Shunk, 232 W. 22d st
 Henry M. Silver, 5 E. 43d st
 Lewis Mann Silver, 103 W. 72d st
 Chas. E. Simmons, 726 Madison av
 Wm. K. Simson, 952 Lexington av
 H. Marion Sims, 30 W. 58th st
 Frank D. Skeel, 361 Mott av
 Alexander J. C. Skene, 167 Clinton st., Brooklyn, N. Y.
 George W. Smallwood, 104 W. 84th st
 Abram A. Smith, 8 W. 47th st
 Andrew H. Smith, 15 E. 38th st
 Edw. Franklin Smith, 308 W. 45th st
 George De F. Smith, 20 E. 29th st
 Gouverneur M. Smith, 52 W. 55th st
 Judson C. Smith, 228 E. 19th st
 Oscar G. Smith, 130 Washington pl
 Stephen Smith, 64 W. 56th st
 Frederic E. Sondern, 200 W. 56th st
 T. S. Southworth, 47 W. 56th st
 Alfred M. Spalding, 419 W. 145th st
 George A. Spalding, 248 Lenox av
 D. B. Spence, 559 W. 185th st
 James D. Spence, Watertown, N. Y.
 Edward C. Spitzka, 66 W. 73d st
 Edward R. Squibb, 148 Columbia Heights, Brooklyn
 H. E. Stafford, 8 E. 34th st
 Henry S. Stark, 151 E. 72d st
 M. Allen Starr, 22 W. 48th st
 Henry S. Stearns, 21 E. 44th st
 Thos. L. Steadman, 53 E. 56th st
 George M. Sternberg, Washington, D. C.
 William Stevens, 70 W. 52d st
 Douglas H. Stewart, 111 W. 64th st
 G. D. Stewart, 180 E. 36th st
 John E. Stillwell, 9 W. 49th st
 Charles W. Stimson, 68 W. 40th st
 Daniel M. Stimson, 11 W. 17th st
 Lewis A. Stimson, 34 E. 33d st
 Gustav M. Stoeckel, 57 W. 75th st
 William L. Stowell, 28 W. 36th st
 W. Stratford, 263 W. 52d st
 Alfred N. Strouse, 77 W. 55th st
 Francis H. Stuart, 123 Joralemon st, Brooklyn
 James E. Stubbett, Liberty, N. Y.
 William Stubenbord, 219 W. 38th st
 Frederic R. Sturgis, 16 W. 32d st
 A. Walter Suiter, Herkimer, N. Y.
 Wm. F. Swalm, 118 Lafayette av, Brooklyn, N. Y.
 John H. Swasey, 34 E. 28th st
 Edwin E. Swift, 112 W. 31st st
 George M. Swift, 29 E. 31st st
 William J. Swift, 40 E. 30th st
 George K. Swinburn, 68 W. 46th st
 Brandreth Symonds, 410 W. 20th st
 Parker Syms, 60 W. 47th st
 J. Ocroft Tansley, 28 W. 43d st
 Howard C. Taylor, 62 W. 38th st
 Charles F. Taylor, 117 W. 55th st
 George A. Taylor, 26 W. 34th st
 Henry L. Taylor, 71 W. 55th st
 Robert W. Taylor, 40 W. 21st st
 Joseph F. Terriberry, 120 W. 73d st
 J. Teschner, 134 E. 61st st
 John S. Thacher, 33 W. 39th st
 J. W. H. Thelberg, 10 W. 33d st
 Allen M. Thomas, 61 W. 54th st
 T. Gaillard Thomas, 600 Madison av
 W. Gilman Thompson, 34 E. 31st st
 William H. Thomson, 7 W. 56th st
 S. W. Spencer Toms, Nyack, N. Y.
 Franz J. A. Torek, 699 Madison av
 Sinclair Tousey, 151 W. 76th st
 Wisner R. Townsend, 28 W. 59th st
 E. Clark Tracy, 27 E. 126th st

Roger S. Tracy, 151 W. 106th st
 E. L. Trudeau, Saranac Lake, N. Y.
 Henry Tuck, 39 E. 53d st
 Carlos P. Tucker, 43 W. 26th st
 Erven Alden Tucker, 110 W. 57th st
 E. Emory Tull, 119 W. 80th st
 George M. Tuttle, 49 W. 38th st
 James P. Tuttle, 35 W. 45th st
 Henry H. Tyson, Jr., 47 W. 51st st
 Francis Valk, 146 E. 37th st
 Ferdinand C. Valentine, 242 W. 43d st
 Wm. W. Van Arsdale, 32 W. 33d st
 Bina Potter Vandenbergh, Dansville
 John Van der Poel, 36 W. 39th st
 S. Oakley Van der Poel, 47 E. 25th st
 Waldron C. Vanderpoel, 106 E. 24th st
 Frank Van Fleet, 116 E. 82d st
 Ira Van Gieson, 1 Madison av
 R. Van Santvoord, 106 W. 122d st
 Wm. W. Van Valzah, 10 E. 43d st
 Maus R. Vedder, 690 Madison av
 Hiram N. Vineberg, 751 Madison av
 Caesar A. von Ramdohr, 45 Irving pl
 Ralph Waldo, 68 W. 50th st
 Louis Waldstein, 450 Madison av
 D. Ernest Walker, 240 W. 46th st
 Henry F. Walker, 18 W. 55th st
 John B. Walker, 33 E. 33d st
 L. Pope Walker, 25 E. 24th st
 Josephine Walter, 101 W. 75th st
 Edwin F. Ward, 55 W. 36th st
 George G. Ward, Jr., 230 W. 59th st
 Albert W. Warden, 118 W. 82d st
 Edward J. Ware, 121 W. 93d st
 Everett S. Warner, 117 E. 26th st
 John W. Warner, 107 E. 72d st
 John Warren, 106 E. 29th st
 John S. Warren, 150 W. 48th st
 M. Claudius Warsaw, 255 E. 122d st
 James S. Waterman, 520 Nostrand av, Brooklyn, N. Y.
 Leonard Weber, 25 W. 46th st
 David Webster, 327 Madison av

John E. Weeks, 46 E. 57th st
 Robert F. Weir, 37 W. 33d st
 Faneuil D. Weisse, 46 W. 20th st
 Julius Weiss, 329 W. 28th st
 Brooks H. Wells, 71 W. 45th st
 Sara Welt-Kakels, 814 Lexington av
 Edmund C. Wendt, Paris, France
 Frank E. West, 29 Schermerhorn st, Brooklyn, N. Y.
 James N. West, 36 W. 31st st
 W. H. Weston, 400 W. 22d st
 George G. Wheelock, 75 Park av
 Charles B. White, 107 W. 72d st
 Granville M. White, 272 W. 77th st
 J. Blake White, 1013 Madison av
 Octavius A. White, 1011 Madison av
 Crosby C. Whitman, 166 W. 55th st
 Royal Whitman, 126 W. 59th st
 Joseph Wiener, 1046 Fifth av
 Richard G. Wiener, 48 E. 65th st
 Frederick H. Wiggin, 55 W. 36th st
 Reynold W. Wilcox, 749 Madison av
 T. H. Willard, Madison av and 23d st
 Herbert F. Williams, 363 Grand av, Brooklyn, N. Y.
 Mark H. Williams, 227 W. 135th st
 Gustavus S. Winston, 42 W. 39th st
 Joseph E. Winters, 25 W. 37th st
 Rudolph A. Witthaus, 303 W. 77th st
 William B. Wood, 22 E. 41st st
 J. McGaw Woodbury, 46 W. 17th st
 George Woolsey, 117 E. 36th st
 H. W. Wootton, 417 Lexington av
 Jonathan Wright, 73 Remsen st, Brooklyn, N. Y.
 Frederick W. Wunderlich, 165 Remsen st, Brooklyn, N. Y.
 John A. Wyeth, 151 E. 34th st
 Robert H. Wylie, 215 W. 43d st
 W. Gill Wylie, 28 W. 40th st
 Le Roy M. Yale, 423 Madison av
 J. Van Doren Young, 108 W. 75th st
 William Young, Coldspring
 Adolph Zeh, 243 W. 52d st
 Resident Fellows, 804.

MEDICAL SOCIETY OF THE COUNTY OF NIAGARA.

MEETINGS.—Annual, first Tuesday in June; semi-annual, first Tuesday in January; quarterly, first Tuesday in April and September.

Officers. (June, 1898.)

H. H. Mayne, *President*.
 G. H. Minard, *Secretary*.

W. L. Bosserman, *Vice-President*.
 John Foote, *Treasurer*.

Censors: A. N. Moore,
 Walter McChesney,

T. B. Cosford, F. J. Baker,
 H. A. Wilmot.

Committee on Hygiene:

A. N. Moore, <i>Chairman</i> .	F. J. Baker,	H. C. Hill,
M. S. Kittinger,	Walter McChesney,	M. H. Cole,
Peter Faling,	T. B. Cosford.	

Delegates to State Medical Society: T. B. Cosford, F. A. Kittinger.

Members.

F. J. Baker, Lockport	M. S. Kittinger, Lockport
J. W. Bickford, Lockport	William Lane, Newfane Station
W. L. Bosserman, Ransomville	Allen T. Leonard, Tonawanda
Frederick T. Carmer, Rapids	M. L. Lang, Niagara Falls
M. H. Cole, Newfane	W. H. Loomis, Lockport
J. W. Corman, Beach Ridge	Walter McChesney, Pekin
T. B. Cosford, Lockport	A. McNamara, Lockport
J. Crosby, Beach Ridge	H. H. Mayne, Lockport
G. W. Eddy, Lewiston	George H. Munard, Lockport
Peter Faling, Gasport	A. N. Moore, Lockport
W. J. Falkner, Youngstown	C. N. Palmer, Lockport
John Foote, Lockport	W. B. Rice, Lockport
J. B. Hartwell, Lockport	E. N. S. Ringueberg, Lockport
J. H. Helmer, Lockport	C. H. Turner, Medina
H. C. Hill, Lockport	H. A. Wilmot, Middleport
W. H. Hodson, Lockport	E. W. Wollabar, Cambria
W. Q. Huggins, Sanborn	W. C. Wood, Lockport
F. A. Kittinger, Lockport	Number of Members, 35.

Deceased: W. J. Ransom, Lockport, August 29, 1897.

MEDICAL SOCIETY OF THE COUNTY OF ONEIDA.

MEETINGS.—Annual, second Tuesday in April; semi-annual, second Tuesday in October; quarterly, second Tuesday in July and January. The semi-annual meeting is held in Rome; the others in Utica.

Officers. (April, 1898.)

Francis T. Gorton, <i>President</i> .	Myron W. Hunt, <i>Vice-President</i> .
L. F. Pattengill, <i>Secretary</i> .	Herbert G. Jones, <i>Treasurer</i> .
Walter Gibson, <i>Librarian</i> .	

<i>Censors:</i> Wm. Stump,	W. C. Gibson,	H. L. Borland,
F. H. Peck,	B. P. Allen.	

Delegates to State Medical Society: S. C. Maxson, Chas. E. Smith, F. H. Peck.

Members.

(Where no town is mentioned Utica is to be understood.)

E. P. Abbott, Oriskany	David C. Bissell, Stanwix
B. P. Allen, Oriskany	Thomas J. Bergen, 93 John st
James A. Armstrong, Clinton	G. Alder Blumer, State Hospital
Charles G. Bacon, Camden	J. R. Boomer, Utica
Smith Baker, Rowland's Building	H. L. Borland, Camden
M. M. Bagg, Utica	H. C. Bradford, Westernville
D. A. Barnum, Cassville	F. H. Brewer, Utica
F. E. Burrows, Clinton	A. J. Browne, Carlile Building
P. J. Barrett, Utica	Henry E. Brown, Utica
Charles R. Bartlett, Forestport	W. H. Brownell, Utica
H. G. Bartlett, Oriskany Falls	Wales Buell, Walesville

- W. A. Burgess, 238 Genesee st
 P. J. Campbell, Utica
 E. P. Clark, Utica
 Wallace Clarke, 136 Park av
 A. M. Collier, Utica
 Ira M. Comstock, New York Mills
 Mathias Cooke, 92 Columbia st
 C. W. Crumb, Utica
 Morris J. Davies, Utica
 William R. Davis, Utica
 Theodore Deecke, Utica
 A. P. Dodge, Oneida Castle
 C. V. J. Doolittle, Utica
 James W. Douglass, Boonville
 Frederick J. Douglass, Utica
 A. G. Doust, New Hartford
 H. G. Dubois, Camden
 W. C. Duke, Forestport
 D. C. Dye, Carlile Building
 Eliza M. Ellinwood, Rome
 G. P. English, Boonville
 Edwin Evans, Rome
 Thomas H. Farrell, Utica
 G. M. Fisher, Clayville
 Thomas M. Flandreau, Rome
 W. E. Ford, 266 Genesee st
 Charles E. Fraser, Jr., Rome
 Jefferson C. Fraser, Ava
 Conway Frost, Clinton
 Earl D. Fuller, 148 Columbia st
 F. A. Gary, Vernon
 W. C. Gibson, State Hospital, Utica
 William M. Gibson, 260 Genesee st
 S. L. Gifford, Whitesboro
 A. A. Gillette, Rome
 J. H. Glass, 246 Genesee st
 Francis T. Gorton, Waterville
 V. B. Hamlin, Clinton
 Joseph V. Haberer, 66 Miller st
 C. R. Hart, New Hartford
 Thomas Hayes, Deerfield, office Utica
 Robert H. Hews, North Western
 J. D. Hilton, Washington Mills
 A. L. Holden, 182 South st
 Ira D. Hopkins, 25 Blandina st
 J. G. Hunt, 192 Genesee st
 Myron W. Hunt, Holland Patent
 E. M. Hyland, 221 Genesee st
 William H. James, Whitesboro
 Herbert G. Jones, Utica
 J. D. Jones, Utica
 James E. Jones, Clayville
 H. W. Jones, Waterville
 Leroy H. Jones, Utica
 Thomas Z. Jones, Waterville
 William W. Jones, Whitesboro
 Judson G. Kilbourn, 247 Genesee st
 D. R. Kinloch, Utica
 George A. Krug, Utica
 William Kuhn, Rome
 William Mabon, Utica
 James McCullough, Remsen
 W. R. Marsden, Utica
 A. W. Marsh, Oriskany Falls
 Angeline Martine, Utica
 S. C. Maxson, Utica
 Julia E. Merchant, Rome
 Charlotte L. Merrick, Utica
 James Middleditch, Rome
 Frederick Miller, Deerfield
 W. S. Morris, Utica
 Charles Munger, Knoxboro
 Isidor Nadll, Utica
 William H. Nelson, Taberg
 H. Nicholls, North Bay
 Thomas G. Nock, Jr., Rome
 John B. Nold, Utica
 J. Owens, Steuben
 H. C. Palmer, 253 Genesee st
 H. L. Palmer, Utica State Hospital
 W. B. Palmer, 30 South st
 L. F. Pattengill, 225 Genesee st
 F. H. Peck, Utica
 Johnson Pillmore, Delta
 G. J. Pollard, Oriskany Falls
 H. N. Porter, New York Mills
 William Powell, Utica
 H. Frank Preston, Utica
 Medina Preston, Sangerfield
 Hamilton S. Quin, 238 Genesee st
 William S. Ralph, 26 Court st
 C. C. Reid, Rome
 H. G. Reid, Westernville
 William B. Reid, Rome
 Lafayette Rinkle, Boonville
 D. H. Roberts, Utica
 J. M. Ross, Utica
 Charles P. Russell, 196 Genesee st
 W. D. Russell, New Hartford
 W. J. Schuyler, 266 Genesee st
 George Seymour, 227 Genesee st
 Charles W. Shaver, Florence
 William Stump, Utica
 A. R. Simmons, Utica
 Hugh Sloan, 142 Columbia st
 A. H. Smith, Camden
 Charles E. Smith, Whitesboro
 Walter Spicer, Holland Patent
 Witmore Steele, Utica State Hospital
 Edward J. Stevens, 183 Genesee st
 F. S. Stewart, Sanquoit
 Henry C. Sutton, Rome
 L. Swartwout, Prospect
 J. Nelson Teeter, Utica
 Charles B. Tefft, Utica
 Louis A. Tourtellot, 40 Broad st
 William M. Towsley, Camden
 F. P. Utley, Deansville

F. A. Veeder, 29 Oneida st
Charles G. Ward, Utica
Charles R. Weed, Utica
W. E. Wetmore, Utica

Evan G. Williams, Remsen
J. F. Wingenback, Utica
Hiram P. Worden, Westmoreland
Number of Members, 147.

Deceased: W. H. Booth, Utica, September 25, 1897, set. 45; Delos A. Crane, Holland Patent, July 22, 1897, set. 76; R. E. Sutton, Rome, November 10, 1897.

MEDICAL SOCIETY OF THE COUNTY OF ONONDAGA.

(Organized in 1806.)

MEETINGS.—Annual, second Tuesday in May; semi-annual, third Tuesday in December; quarterly, at such intermediate times as the Society may direct. All meetings are held at Syracuse.

Officers. (May, 1898.)

A. E. Vadeboncœur, *President*. Margaret Stanton, *Vice-President*.
E. J. Wynkoop, *Secretary*. F. H. Stevenson, *Treasurer*.

Delegates to State Medical Society: F. H. Stevenson, O. G. Dibble,
R. C. McLennan, E. J. Winkoop.

Members.

(Where the town is not mentioned Syracuse is to be understood.)

Robert Aberdein, James st	N. H. Curtis, Manlius
Henry B. Allen, 326 Montgomery st	A. J. Dallis, 340 Warren st
W. J. Ayling, 318 Mulberry st	Chas. N. Daman, 621 E. Genesee st
Archer D. Babcock, Syracuse	L. P. Deeming, 332 Montgomery st
Theresa Bannan, 503 Warren st	O. G. Dibble, Pompey
H. C. Baum, Syracuse	H. D. Didama, 424 S. Salina st
John A. Belch, W. Calvin	F. O. Donohue, S. Clinton st
E. W. Belknap, E. Genesee st	A. G. Doust, Delaware st
A. C. Benedict, 334 Montgomery st	Gregory Doyle, 307 W. Genesee st
Charles H. Benson, Seymour st	William H. Dwinell, Tully
C. E. Billington, 614 E. Fayette st	Thomas B. Dwyer, 624 Harrison st
O. A. Blumenthal, Syracuse	F. E. Easton, Syracuse
A. B. Breese, James st	A. S. Edwards, 1506 N. Salina st
G. L. Brown, Euclid	G. A. Edwards, S. Salina st
U. Higgins Brown, 312 Warren st	H. L. Elsner, Fayette Park
John W. Brown, Mottville	F. G. Englehardt, N. Salina st
J. H. Burch, Baldwinsville	J. T. D. Fischer, Butternut st
D. W. Burdick, Syracuse	M. B. Fairchild, 1305 N. Salina st
F. H. Butler, 204 Seymour st	J. W. Fry, 1 Griffin block, Lock st
A. J. Campbell, 333 Warren st	T. H. Halsted, 427 S. Salina st
James E. Carr, Jordan	Juliet E. Hanchett, 601 Warren st
J. C. Carson, State Asylum	R. C. Hanchett, 3 Joy Building
B. F. Chase, East Syracuse	John R. Harding, Genesee st
George E. Clark, Skaneateles	Carrie A. Hatch, 110 Onondaga st
Gaylord P. Clark, W. Genesee st	Hiram B. Hawley, N. Salina st
Frank R. Coe, Warners	A. D. Head, 202 E. Genesee st
J. H. Coe, 804 E. Genesee st	George T. Head, 107 W. Kennedy st
M. H. Cullings, Syracuse	C. E. Heaton, Baldwinsville
Allen Cone, Elbridge	A. W. Hedden, Syracuse
Geo. W. Cook, W. Fayette st	J. L. Heffron, 448 S. Salina st
Charles A. Covell, S. Salina st	Mrs. E. J. Holcomb, 501 E. Fayette st
S. Ellis Crane, Onondaga Valley	Nathan Jacobson, 430 S. Salina st
S. Boyce Crayton, 117 E. Jefferson st	J. Robert Johnson, Syracuse
William A. Curtin, Fayette Park	Joel G. Justin, 501 E. Fayette st

- J. F. Kaufman, Church st
D. A. Kellogg, Navarino
W. C. Kellogg, Grace st
J. V. Kendall, Baldwinsville
George R. Kinne, 626 Gifford st
J. W. Knapp, 432 W. Genesee st
William F. Law, Syracuse
T. Harris Levy, Warren st
G. Griffin Lewis, Warren st
B. W. Loomis, S. Salina st
M. M. Lucid, Tully
Charles E. McClary, 110 South av
D. J. McLaughlin, Skaneateles Falls
R. C. McLennan, 414 S. Salina st
P. R. McMaster, Syracuse
Frank McMorro, The Durston
F. W. Marlow, 401 Montgomery st
A. W. Marsh, E. Syracuse
Edwin R. Maxson, 818 Madison st
E. S. Maxson, 818 Madison st
William H. May, 800 E. Fayette st
W. H. Maynard, 358 Delaware st
Alfred Mercer, 324 Montgomery st
A. C. Mercer, 324 Montgomery st
E. B. Merwin, Manlius
H. D. Merwin, Cicero
A. B. Miller, 326 Montgomery st
E. L. Mooney, 416 Warren st
J. A. Morris, Lafayette
E. S. Mumford, W. Genesee st
J. F. Munn, 329 Warren st
N. A. Munroe, 424 James st
W. W. Munson, Otisco
D. H. Murray, 426 James st
O. W. Oberlander, 310 Ash st
Scott Owen, 223 Montgomery st
Charles L. Parker, Onondaga
Israel Parsons, Marcellus
H. H. Pease, 320 Montgomery st
L. K. Peck, 907 N. Alvord st
W. T. Plant, 222 Harrison st
J. D. Potter, Delphi
George M. Price, 704 Catharine st
A. B. Randall, 420 Warren st
Gregory Reidy, Clinton Block
H. E. Richardson, E. Syracuse
C. S. Roberts, 7 Clinton place
John Robson, Elbridge
Arthur H. Rood, Minoa
M. R. Rood, 422 Warren st
Joseph C. Roth, 435 Gifford st
A. S. Ruland, Syracuse
Mrs. E. A. Runion Buck, Warren st
Frank J. Rupp, 717 Catharine st
Kate Hathaway Salmon, Syracuse
F. S. Sampson, North Syracuse
L. A. Saxer, James st
F. W. Sears, Warren st
John C. Shroudy, Syracuse
E. C. Skinner, Syracuse
I. M. Slingerland, Fayetteville
F. W. Slocum, Camillus
Clara Smith, Utica, N. Y.
F. W. Smith, Warren st
William M. Smith, 138 Holland st
S. F. Snow, 117 E. Jefferson st
Margaret Stanton, 104 Marshall st
H. L. Stebbins, Syracuse
F. H. Stevenson, 307 Warren st
F. A. Strong, Brewerton
O. A. Thomas, 813 S. Salina st
H. P. Tolman, Onondaga Valley
D. M. Totman, 303 Montgomery st
Van Dyke Tripp, Borodino
A. F. Vadeboncoeur, 354 Green st
George L. Van Allen, Syracuse
Eli Van de Warker, 404 Genesee st
John Van Duyn, James st
Gervasse M. Wasse, Baldwinsville
Lewis F. Weaver, 121 Green st
H. A. Weed, Jordan
Charles E. Weidman, Marcellus
W. J. Werfleman, 908 N. Salina st
Calvin B. West, East Onondaga
James Whitford, Onondaga Valley
R. A. Whitney, Liverpool
Hiram Wiggins, Elbridge
M. J. Williams, Jordan
N. Wilbur, Fayetteville
C. F. Wright, 403 Warren st
H. B. Wright, Skaneateles
E. J. Wynkoop, 406 James st

Number of Members, 160.

Deceased: J. B. Taylor, Syracuse, July 23, 1897, æt. 59; Jonathan Kneeland, Syracuse; W. R. Johnson, Syracuse.

MEDICAL SOCIETY OF THE COUNTY OF ONTARIO.

MEETINGS.—Annual, second Tuesday in July; quarterly, second Tuesday in October, January, and April.

Officers. (July, 1897.)

J. H. Pratt, *President.* C. D. McCarthy, *Vice-President.*
A. L. Beahan, *Secretary and Treasurer.*

Delegate to State Medical Society: B. C. Loveland.

Members.

Herman J. Abel, Honeoye	B. C. Loveland, Clifton Springs
A. D. Allen, Gorham	E. E. McClellan, Canandaigua
D. S. Allen, Hall's Corners	C. D. McCarthy, Geneva
A. L. Beahan, Canandaigua	B. F. McDowell, Bristol Centre
F. R. Bentley, Cheshire	D. J. Mallery, Bristol Centre
Edwin R. Bishop, Geneva	A. M. Mead, Victor
H. C. Buell, Canandaigua	C. P. W. Merritt, Clifton Springs
D. R. Burrell, Canandaigua	J. B. Pratt, Manchester
M. R. Carson, Canandaigua	John H. Pratt, Manchester
Henry O. Clapp, Geneva	John A. Robson, Hall's
William B. Clapper, Farmington	T. D. Rupert, Geneva
J. Pope Delaney, Geneva	George W. Sargent, Seneca Castle
J. F. Draper, Victor	F. B. Sayre, Allen's Hill
H. M. Eddy, Geneva	F. W. Spaulding, Clifton Springs
Daniel A. Eiseline, Shortsville	F. Lansing Stebbins, Geneva
Edwin Gillette, Canandaigua	H. B. Strong, Geneva
O. J. Hallenbeck, Canandaigua	C. C. Thayer, Clifton Springs
W. S. Hicks, Bristol	William Turck, Clifton Springs
W. A. Howe, Phelps	F. D. Vanderhoof, Phelps
John Hutchins, Cheshire	F. B. Wetling, Wetling
C. O. Jackson, Victor	S. R. Wheeler, E. Bloomfield
J. H. Jewett, Canandaigua	L. F. Wilbur, Honeoye
J. A. Lichty, Clifton Springs	G. B. Young, Geneva
Cora L. Lichty, Clifton Springs	Number of Members, 47.

MEDICAL SOCIETY OF THE COUNTY OF ORANGE.

(Organized July 1, 1806.)

MEETINGS.—Annual, first Tuesday in May; semi-annual, first Tuesday in October.

Officers. (May, 1898.)

H. Hardenbergh, <i>President.</i>	J. B. Peters, <i>Vice-President.</i>
Theo. D. Mills, <i>Secretary.</i>	D. T. Condict, <i>Treasurer.</i>
<i>Censors:</i> J. H. Thompson,	C. E. Townsend, W. E. Douglas,
E. Potts,	W. T. Seeley.

Committee on Hygiene: Jas. Wood, C. W. Banks, A. M. Goodman.

Committee on Admissions: T. D. Mills, W. L. Cuddeback, R. V. K. Montfort.

Publishing Committee: J. B. Hulett, J. D. Davis, J. T. Howell.

Committee of Science: H. Hardenbergh, J. T. Howell, W. F. Gleason.

Auditing Committee: W. I. Purdy, F. W. Dennis, J. D. Brownell.

Delegates to State Medical Society: W. F. Gleason, Theo. Writer; *Alternates:* D. B. Hardenbergh, W. T. Seeley.

Members.

A. E. Adams, Newburg	C. W. Butler, Cornwall
C. W. Banks, Port Jervis	S. G. Carpenter, Chester
William Beattie, Cornwall	Wm. J. Carr, Newburg
George S. Bond, Washingtonville	D. T. Condict, Goshen
H. K. Bradner, Warwick	Clinton G. Cooley, Montgomery
W. B. Bradner, Warwick	James C. Coleman, Goshen
E. F. Brooks, Newburg	William L. Cuddeback, Port Jervis
G. Herbert Brown, Highland Falls	N. W. Currie, Searsville

H. O. Davis, Howells
 F. W. Dennis, Unionville
 William E. Douglas, Middletown
 E. Ross Elliott, Montgomery
 G. A. Emory, Middletown
 William Evans, Westtown
 Harvey Everett, Middletown
 A. P. Farries, Florida
 Frank W. Gerecke, Newburg
 W. F. Gleason, Newburg
 Thomas S. Gilson, Middletown
 A. M. Goodman, Jr., Salisbury
 Lewis Hanmore, Newburg
 Daniel B. Hardenbergh, Middletown
 H. Hardenbergh, Port Jervis
 William Hollinger, Newburg
 John T. Howell, Newburg
 Joseph B. Hulett, Middletown
 C. N. Knapp, Port Jervis
 Isaac H. Lent, Middletown
 A. V. Jova, Newburg
 D. G. Lippincott, Campbell Hall
 T. D. Mills, Middletown
 J. Moffat, Washingtonville
 R. V. K. Montfort, Newburg

F. D. Myers, Slate Hill
 William J. Nelson, Middletown
 E. A. Nugent, Unionville
 J. B. Peters, Walden
 L. R. Pierce, Newburg
 B. Pillsbury, Middletown
 E. Potts, Port Jervis
 Willis I. Purdy, Middletown
 Charles I. Redfield, Middletown
 H. H. Robinson, Goshen
 A. Santee, Scotchtown
 W. T. Seeley, Amity
 Charles N. Skinner, Port Jervis
 D. B. Smiley, Middletown
 C. P. Smith, Jr., Chester
 David H. Sprague, Central Valley
 Moses A. Stivers, Middletown
 Henry B. Swartout, Port Jervis
 Robert Taylor, Otisville
 Charles E. Townsend, Newburg
 J. H. Thompson, Goshen
 James Wood, Newburg
 Edward Dubois Woodhall, Monroe
 Warren Worcester, Middletown
 Theodore Writer, Otisville
 Number of Members, 66.

Deceased : A. L. Browne, Cornwall, May, 1898.

MEDICAL SOCIETY OF THE COUNTY OF ORLEANS.

(Organized January 8, 1878.)

MEETINGS.—Annual, second Wednesday in May ; second meeting, second Wednesday in September ; third meeting, second Wednesday in January.

Officers. (May 12, 1898.)

John E. Sutton, *President.* J. H. Taylor, *Vice-President.*
 McLean Caverly, *Secretary and Treasurer.*

Censors : J. H. Taylor, S. R. Cochrane, McLean Caverly,
 H. L. James, R. W. Bamber.

Delegate to State Medical Society : John H. Taylor.

Members.

E. R. Armstrong, Holley
 R. W. Bamber, Kendall
 M. L. Cavelry, Albion
 James Chapman, Medina
 Samuel R. Q. Cochrane, Albion
 J. G. Dolley, Albion
 J. Dugan, Albion
 W. F. Eaman, Gaines
 Charles E. Fairman, Lydonville
 W. R. Fitch, Knowlesville
 A. R. Holcomb, Carlton
 Harvey L. James, Shelby
 John T. James, Medina

F. L. June, Waterport
 M. F. Mudge, Eagle Harbor
 Edward Munson, Medina
 J. J. Simonds, Barre Centre
 Mrs. E. W. Squier, Albion
 J. T. Stokes, Medina
 F. B. Storer, Holley
 John E. Sutton, Albion
 J. H. Taylor, Holley
 E. M. Tompkins, Knowlesville
 Mrs. Harriet N. Watson, Albion

Number of Members, 24.

Deceased : Frederic B. Gould, Kent.

MEDICAL SOCIETY OF THE COUNTY OF OSWEGO.

(Organized in 1821.)

MEETINGS.—Annual, second Tuesday in May ; semi-annual, second Tuesday in November, at Oswego.

Officers. (May, 1898.)

S. A. Russell, *President.* J. W. Huntington, *Vice-President.*
H. P. Marsh, *Secretary.* P. M. Dowd, *Treasurer.*

Censors: P. M. Dowd, D. C. Highriter, G. W. Nelson.

Delegates to State Medical Society: J. W. Huntington and C. G. Bacon.

Members.

W. G. Babcock, Cleveland	J. W. Huntington, Mexico
C. G. Bacon, Fulton	Mary K. Hutchins, Oswego
C. J. Bacon, Fulton	George P. Johnson, Mexico
Strong M. Bennett, Mexico	Ira L. Jones, Minetto
E. H. Boyd, Hannibal	C. M. Lee, Fulton
W. J. Bulger, Oswego	C. R. Lee, Fulton
J. L. Bulkey, Sandy Creek	F. S. Low, Pulaski
H. W. Caldwell, Pulaski	J. E. Mansfield, Oswego
O. C. P. Clark, Oswego	E. F. Marsh, 466 9th st, Brooklyn
F. R. Coe, Sand Bank	H. P. Marsh, Fulton
F. L. Cooley, Oswego	Eva E. McKnight, Oswego
R. N. Cooley, Hannibal Centre	James H. McCort, Fulton
W. H. Counterman, Cleveland	J. H. Mease, Oswego
William B. Coye, Fulton	J. L. Moore, South Richland
R. F. Crockett, Sandy Creek	G. W. Nelson, Orwell
S. J. Crockett, Sandy Creek	John Moroney, Oswego
Byron Dewitt, Oswego	J. Pero, West Amboy
R. J. Dimon, Hastings	H. D. C. Phelps, Oswego
P. M. Dowd, Oswego	E. Rainier, Oswego
D. D. Drake, Central Square	Alfred Rice, Hannibal
E. J. Drury, Phoenix	S. A. Russell, Fulton
J. T. Dwyer, Oswego	William O. Scott, Parish
J. W. Eddy, Oswego	C. A. Sheridan, Oswego
Joseph Gardiner, Williamstown	J. K. Stockwell, Oswego
Albert W. Green, Oneida Castle	F. J. Tilapaugh, Sand Bank
T. J. Green, Mexico	J. B. Todd, Parish
N. F. Hall, Fulton	William C. Todd, Oswego
John E. Hamill, Phoenix	Melzar B. Veeder, Central Square
Vincent G. Hamill, Phoenix	W. M. Wells, Oswego Falls
Frank B. Foote Parish	G. G. Whittaker, Fulton
D. C. Highriter, Fulton	Hadwen P. Wilcox, Central Square
LeRoy F. Hollis, Sandy Creek	
James S. Howard, Oswego	

Number of Members, 63.

Honorary Members: O. H. Butler, Oswego ; J. C. Curtis, D.D.S., Fulton ; J. V. Kendall, Baldwinsville ; Mr. F. O. Clarke ; Charles R. Jackson, New York.

Deceased: N. W. Bates, Central Square.

MEDICAL SOCIETY OF THE COUNTY OF OTSEGO.

(Organized in 1806.)

MEETINGS.—Annual, fourth Tuesday in May, at Cooperstown ; semi-annual, third Tuesday in January.

Officers. (May, 1898.)

M. C. Wright, *President.*
H. W. Boorn, *Secretary.*

A. H. Brownell, *Vice-President.*
James Burton, *Treasurer.*

Delegate to State Medical Society: John H. Moon.

Members.

M. Imogene Bassett, Cooperstown
Wilson T. Bassett, Cooperstown
A. P. Bergman, Fly Creek
B. E. Bishop, Garrattsville
A. D. Blakely, Milford
Julius W. Blakely, Middlefield Centre
H. D. Blanchard, Portlandville
Henry W. Boorn, Schenevus
A. H. Brownell, Oneonta
James Burton, Cooperstown
Andrew J. Butler, Unadilla
William B. Campbell, Garrattsville
Meigs Case, Oneonta
Lorenzo B. Chapman, Oneonta
Charles H. Chesebro, Unadilla
Forks
B. A. Church, Oneonta
H. H. Clapsaddle, Toddsville
David H. Davis, East Worcester
S. M. Day, Burlington Flats
B. W. Dewar, Cooperstown
E. E. Dye, Fly Creek
M. K. Engell, South Valley
George F. Entler, Oneonta
M. L. Ford, Oneonta
John W. Green, West Laurens
W. H. Hall, Morris

E. E. Houghton, Schenevus
Horace Lathrop, Cooperstown
J. K. Leaning, Cooperstown
William H. Leonard, Worcester
W. R. Lough, Edmeston Centre
J. H. Martin, Otsego
George L. Merritt, Cherry Valley
John H. Moon, Cooperstown
C. E. Parish, Maryland
Edward J. Parish, Maryland
Ozias W. Peck, Oneonta
S. G. Pomeroy, West Oneonta
L. H. Quackenbush, Binghamton
W. R. Seber, Milford
Henry D. Sill, Cooperstown
George A. Sloan, Westford
Julian C. Smith, Oneonta
J. W. Sterricker, Roseboom
P. Kerney Strong, Laurens
J. W. Swanson, Springfield Centre
G. C. Thayer, Cooperstown
Edgar D. Van Cleft, Oneonta
Frank L. Windsor, Laurens
C. F. Wood, Wells Bridge
Milton C. Wright, Mt. Vision

Number of Members 51.

MEDICAL SOCIETY OF THE COUNTY OF PUTNAM.

(Organized July 28, 1874.)

MEETINGS.—Annual, fourth Tuesday in April; semi-annual, fourth Tuesday in October.

Officers. (April, 1898.)

A. La Monte, *President.*

J. E. Card, *Vice-President.*

J. E. Reed, *Secretary and Treasurer.*

Censors: J. E. Card, Jr.,

J. E. Reed.

Delegate to State Medical Society: J. E. Reed.

Members.

J. Edson Card, Jr., Mahopac
Austin La Monte, Carmel

George W. Murdock, Cold Spring
J. E. Reed, Carmel

Number of Members, 4.

Honorary Member: H. Pearce, Pawling, N. Y.

MEDICAL SOCIETY OF THE COUNTY OF QUEENS.

MEETINGS.—Annual, last Tuesday in May; semi-annual, last Tuesday in October.

Officers. (May, 1898.)

John Ordronaux, *President.*

J. D. Trask, *Vice-President.*

James S. Cooley, *Secretary and Treasurer.*

Censors: Walter G. Frey, Wm. H. Zabriskie,
John H. Barry, C. T. Taliaferro, H. M. Auger.

Delegates to State Medical Society: Samuel Hendrickson, E. D. Skinner,
C. G. J. Finn.

Members.

A. J. Anderson, L. I. City	M. W. Herriman, Long Island City
H. M. Auger, Jamaica	J. P. Heyen, Northport
R. B. Baisley, East Rockaway	J. R. Hinkson, Long Island City
H. L. Barker, Woodside	J. E. Hutcheson, Rockville Centre
Irving T. Barnes, Oyster Bay	James B. Kennedy, Long Island City
J. H. Barry, Long Island City	L. N. Lanehart, Hempstead
Austin J. Blanchard, Jamaica	Walter Lindsay, Huntington
J. H. Bogart, Roslyn	C. H. Ludlum, Hempstead
Willet S. Brown, Flushing	R. F. Macfarlane, Long Island City
P. H. Bumster, Long Island City	John Mann, Jericho
W. J. Burnett, Long Island City	P. J. McKeown, Long Island City
John F. Burns, Long Island City	Paul O. Meyer, Long Island City
M. S. Caldwell, Far Rockaway	G. K. Meynen, Jamaica
William I. Cocke, Port Washington	W. A. Miles, Hempstead
A. C. Combes, Newtown	John Ordronaux, Roslyn
James S. Cooley, Glen Cove	Adolph G. Rave, New Hyde Park
J. H. B. Denton, Freeport	E. G. Rave, Hicksville
G. W. Donahue, Northport	R. F. B. Seaman, Locust Valley
Horace D. Dow, Masspeth	E. D. Skinner, Mineola
F. T. de Lano, Rockville Centre	S. B. Smallwood, Astoria
George W. Faller, Oyster Bay	Benj. G. Strong, Long Island City
C. G. J. Finn, Hempstead	C. T. Taliaferro, Hicksville
Neil O. Fitch, Astoria	H. B. Tingley, Oceanus
Walter G. Frey, Long Island City	J. D. Trask, Astoria
G. A. Fensterer, Floral Park	John F. Valentine, Richmond Hill
William B. Gibson, Huntington	Anselm A. Voegtle, Long Island City
E. A. Goodridge, Flushing	Philip M. Wood, Jamaica
Charles J. Hall, Glen Cove	W. G. Wood, Jamaica
Samuel Hendrickson, Jamaica	William H. Zabriskie, Glen Cove
Skidmore Hendrickson, Brooklyn	Number of Members, 59.

MEDICAL SOCIETY OF THE COUNTY OF RENSSELAER.

(Organized 1806.)

* MEETINGS.—Annual, second Tuesday in May; stated, second Tuesday in each month, except July and August.

Officers. (May, 1898.)

M. A. Wheeler, *President.* A. R. Thompson, *Vice-President.*
D. B. Buchanan, *Secretary.* C. H. Travell, *Treasurer.*

Censors: G. A. Bradbury, J. H. Bissell, J. C. Hutchinson.

Delegates to State Medical Society: G. A. Bradbury, M. D. Dickinson,
Archibald Buchanan, E. L. Meredith.

Members.

(Where no town is mentioned Troy is to be understood.)

Z. F. Adt, 54 4th st	J. H. Bissell, 2187 Fifth av
W. Akin, 12 4th st	R. B. Bontecou, 82 4th st
A. Allen, Grafton Centre	R. Brismade Bontecou, 84 4th st
C. S. Allen, Greenbush	B. S. Booth, 21 1st st
W. L. Allen, Greenbush	G. A. Bradbury, Lansingburgh
Joseph E. Baynes, 2145 Fifth av	E. A. Bron, 5th and State sts

- Archibald Buchanan, 128 3d st
 Donald G. Buchanan, 1930 Fifth av
 E. W. Capron, Lansingburgh
 J. H. Cipperly, 131 2d st
 W. Cooper, 81 3d st
 A. C. Crouse, Melrose
 H. Defreest, Troy
 H. E. Defreest, 737 River st
 M. D. Dickinson, 6 St. Paul's place
 T. G. Dickinson, 1829 Fourth av
 M. Felter, 1626 Fifth av
 E. D. Ferguson, 1 Union place
 William Finder, Jr., 2 Union place
 W. J. Flemming, 169 3d st
 H. C. Gordinier, 89 4th st
 C. E. Greenman, 179 1st st
 T. H. Hannan, Hoosick Falls
 J. B. Harvie, 6 Clinton pl
 T. B. Heimstreet, 14 Division st
 C. B. Herrick, 1824 Fifth av
 W. L. Hogeboom, 2183 Fifth av
 D. W. Houston, 44 2d st
 J. C. Hutchinson, 328 Congress st
 H. T. Ives, Lansingburgh
 M. Keenan, 2275 Fifth av
 O. F. Kinloch, 16 4th st
 J. B. Lomax, Marshall Infirmary
 E. L. Lyons, 298 Fourth av
 F. T. McIntosh, 2654 Fifth av
 J. P. Marsh, 1828 Fifth av
 W. P. Mason, Prof. Chem., R. P. I.
 F. E. Maybury, Lansingburgh
 E. L. Meredith, 2129 Fifth av
 J. McChesney, Pawling av
 James T. McKenna, 117 3d st
 E. W. Morehouse, 99 2d st
 J. W. Morris, 1823 Fifth av
 C. E. Nicholas, 25 1st st
 M. F. Phalen, 1629 Fifth av
 Z. Rosseau, 105 2d st
 T. B. St. John, Centre Brunswick
 W. W. Seymour, 105 3d st
 S. A. Skinner, Hoosick Falls
 F. Smith, 3 Clinton place
 A. R. Thompson, 4 Clinton place
 C. H. Travell, 14 4th st
 L. G. Tuttle, Business College
 B. J. Ward, 1 Cyprus st
 R. H. Ward, 53 4th st
 S. H. Webster, 811 River st
 M. A. Wheeler, Albion
 F. Winship, Eagle Mills
 Isaac N. Wright, Averill Park
 Number of Members, 65.

MEDICAL SOCIETY OF THE COUNTY OF RICHMOND.

MEETINGS.—Annual, first Wednesday in January; stated, first Wednesday in April, July, and October, at 8.30 P.M., at the S. R. Smith Infirmary, New Brighton.

Officers. (January, 1898.)

E. D. Coonley, *President*. C. W. Townsend, *Vice-President*.
 H. C. Johnston, *Secretary and Treasurer*.

Censors: J. J. O'Dea, Wm. Bryan, T. J. Thompson.

Delegate to State Medical Society: H. C. Johnston.

Members.

- F. T. Barber, Port Richmond
 George Beers, New Brighton
 H. Beyer, Stapleton
 W. W. Bostwick, New Brighton
 W. F. Bourne, Tomkinsville
 William Bryan, W. New Brighton
 E. J. Callahan, W. New Brighton
 F. E. Clarke, W. New Brighton
 J. G. Clarke, W. New Brighton
 E. D. Coonley, Mariners' Harbor
 A. D. Decker, Prince's Bay
 F. De Revere, Stapleton
 J. D. Dickson, New Brighton
 A. H. Doty, Clifton
 R. Henry Golder, Rossville
 H. T. Goodwin, Stapleton
 G. C. Hubbard, Tottenville
 G. P. Jessup, New Dorp
 H. C. Johnston, New Brighton
 H. D. Joy, Snug Harbor
 J. J. O'Dea, Stapleton
 F. E. Martindale, Port Richmond
 F. Mechtold, Stapleton
 Isaac L. Millsbaugh, Richmond
 George Mord, Clifton
 Jeff Scales, New Brighton
 E. H. Sparks, Prince's Bay
 J. T. Sprague, Clifton
 T. J. Thompson, Clifton
 C. W. Townsend, New Brighton
 J. J. Van Rensselaer, New Brighton
 J. E. Vidal, Stapleton
 Theodore Walser, New Brighton
 W. C. Walser, W. New Brighton
 Walker Washington, Tottenville
 S. E. Whitman, Port Richmond
 W. B. Wilkinson, New Brighton
 E. D. Wisely, New Brighton
 J. W. Wood, Port Richmond
 Number of Members, 39.

MEDICAL SOCIETY OF THE COUNTY OF ROCKLAND.

(Reorganized May 18, 1850.)

MEETINGS.—Annual, last Tuesday in May; semi-annual, last Tuesday in October.

*Officers.*E. B. Laird, *President*.
——— *Secretary*.E. H. Maynard, *Vice-President*.
I. C. Haring, *Librarian*.*Censors*: A. O. Bogart, G. A. Blauvelt, J. O. Polhemus.*Delegate to State Medical Society*: ————.*Members.*Garrett A. Blauvelt, Nyack
Albert O. Bogert, Pearl River
S. Demorest, Suffern
Isaac C. Haring, West Nyack
H. H. House, Rockland Lake
Eugene B. Laird, HaverstrawFrank L. Laverseur, Haverstraw
C. H. Masten, Sparkill
E. H. Maynard, Nyack
J. O. Polhemus, Nyack
James J. Stevens, Tappantown
Number of Members, 11.

MEDICAL SOCIETY OF THE COUNTY OF ST. LAWRENCE.

(Reorganized 1861.)

MEETINGS.—Annual, third Tuesday in May; semi-annual, third Tuesday in October.

Officers. (May, 1898.)D. M. Taylor, *President*.
S. W. Close, *Secretary*.Warren L. Babcock, *Vice-President*.
J. S. Raymond, *Treasurer*.*Censors*: Jesse Reynolds, William Mabon, E. H. Bridges.*Delegates to State Medical Society*: J. H. Brownlow, William Mabon.*Members.*Andrew H. Allen, Gouverneur
F. D. Allen, Richville
F. A. Anderson, Massena
W. L. Babcock, Ogdensburg
L. B. Baker, Russell
C. C. Bartholomew, Ogdensburg
John N. Bassett, Jr., Canton
R. T. Bishop, Ogdensburg
E. H. Bridges, Ogdensburg
S. E. Brown, Ogdensburg
S. Pope Brown, Potsdam
J. H. Brownlow, Ogdensburg
S. W. Close, Gouverneur
F. W. Crocker, Lawrence
W. S. Daly, Ogdensburg
S. W. Dodge, Massena
George H. Dowsey, Madrid
A. C. Drury, Canton
Benjamin F. Drury, Gouverneur
Fred F. Drury, Gouverneur
Franklin D. Earl, Ogdensburg
D. W. Finnemore, Potsdam
J. Q. Flood, Hopkinton
Frank J. Fuller, Potsdam
Ira J. Fuller, SpraguevilleJames Garvin, Morristown
E. H. Hackett, North Lawrence
H. T. Hammond, Chase's Mills
W. H. Hanbridge, Ogdensburg
Lucia E. Heaton, Canton
——— Howells, Ogdensburg
T. R. Hossie, Gouverneur
R. H. Hutchins, Ogdensburg
H. Kay Kerr, Hammond
W. H. Kidder, Ogdensburg
William Mabon, Ogdensburg
Grant C. Madill, Ogdensburg
O. McFadden, Massena
H. A. McIlmoyl, Ogdensburg
Hugh Miller McKay, Renaselaer
Falls
Peter Monakey, Gouverneur
H. J. Morgan, Ogdensburg
Robert Morris, Ogdensburg
Flavius Packer, Ogdensburg
Martin S. Parker, Parishville
Caroline Pease, Ogdensburg
T. A. Pease, Norwood
J. S. Raymond, Ogdensburg
Jessie Reynolds, Potsdam

J. E. Robertson, Ogdensburg
 P. H. Shea, Canton
 Moses E. Smith, Colton
 W. C. Smith, Winthrop
 E. M. Somers, Jr., Ogdensburg
 H. S. Stilwell, Ogdensburg

D. M. Taylor, Edwards
 W. E. Whitford, Oxbow
 S. D. Wilgus, Ogdensburg
 J. C. Willson, Canton

Number of Members, 59.

MEDICAL SOCIETY OF THE COUNTY OF SARATOGA.

(Organized in July, 1807.)

MEETINGS.—Annual, first Tuesday in June; semi-annual, first Tuesday in December.

Members.

C. D. Bull, Stillwater
 A. B. Burger, Mechanicsville
 G. F. Comstock, Saratoga Springs
 C. Ensign, Mechanicsville
 C. S. Grant, Saratoga Springs
 W. H. Hall, Saratoga Springs
 E. G. Inlay, Saratoga Springs
 I. G. Johnson, Greenfield Centre
 A. C. Kniskern, Crescent

M. Lewis, Ballston Spa
 B. J. Murray, Saratoga Springs
 T. E. Parkham, Rock City Falls
 T. B. Reynolds, Saratoga Springs
 F. A. Sherman, Ballston Spa
 H. Vanderburgh, Ballston Spa
 F. A. Young, West Carlton
 Edgar Zeli, Waterford

Number of Members, 17.

Deceased: J. R. Preston, Schuylerville, January 2, 1898, æt. 89; William H. Hodgman, Saratoga Springs, July 15, 1898, æt. 47.

MEDICAL SOCIETY OF THE COUNTY OF SCHENECTADY.

(Organized January 16, 1869.)

MEETINGS.—Annual, second Tuesday in January; semi-annual, second Tuesday in June.

Officers. (January, 1898.)

Herman V. Mynderse, *President*.
 Henry A. Kurth, *Secretary*.

Charles G. Briggs, *Vice-President*.
 H. C. Van Zandt, *Treasurer*.

Censors: C. F. Clowe, M. G. Plank, A. J. Young.

Delegate to State Medical Society: Charles C. Duryea.

Members.

C. G. Briggs, Schenectady
 F. V. Brownell, Schenectady
 B. W. Burland, Schenectady
 N. C. Cheesman, Scotia
 C. F. Clowe, Schenectady
 W. T. Clute, Schenectady
 C. C. Duryea, Schenectady
 A. Ennis, Pattersonville
 P. R. Furbeck, Gloversville
 W. W. Goddard, Schenectady
 J. A. Heatley, Schenectady
 D. L. Kathan, Schenectady
 Henry A. Kurth, Schenectady
 George McDonald, Schenectady
 Ralph McDougall, Delaussen
 J. F. McEncroe, Schenectady
 John Mackay, Schenectady
 Jeanette Murray, Schenectady

H. V. Mynderse, Schenectady
 William Parsons, Fultonville
 William L. Pearson, Schenectady
 Maurice Perkins, Schenectady
 M. G. Plank, Schenectady
 Joseph Raymond, Schenectady
 James J. Reagles, Schenectady
 J. L. Schoolcraft, Schenectady
 Reed A. Sauter, Schenectady
 Alfred Smith, Schenectady
 G. L. Van Allen, Schenectady
 E. P. Van Epps, Schenectady
 H. C. Van Zandt, Schenectady
 A. T. Vedder, Schenectady
 L. T. Vedder, Schenectady
 A. J. Young, Schenectady
 Edwin Young, West Glenville
 Number of Members, 35.

MEDICAL SOCIETY OF THE COUNTY OF SCHOHARIE.

(Organized in 1806; reorganized in 1857.)

MEETINGS.—Annual, first Tuesday in June; semi-annual, second Tuesday in October.

Officers. (1898.)

H. L. Odell, *President*. F. T. Beard, *Vice-President*.
 H. F. Kingsley, *Secretary*. L. Cross, *Treasurer*.
Censors: C. K. Frazier, E. O. Bruce, J. J. Miller,
 Charles Dickinson, E. L. Johnson.
Committee on Hygiene: W. S. Rivenburgh, W. W. Burgett.
Delegate to State Medical Society: A. L. Haines.

Members.

F. B. Beard, Cobleskill	Sherwood LeFevre, Richmondville
John J. Beard, Sharon Springs	D. M. Leonard, Broome Centre
LeRoy Becker, Cobleskill	R. R. Leonard, Broome Centre
C. S. Best, Middleburgh	Edward Marsh, Sloansville
E. E. Billing, Gilboa	S. A. Mereness, Cobleskill
J. R. Brown, Seward	J. J. Miller, Cobleskill
E. E. Brayman, Livingstonville	D. Norwood, Esperance
E. O. Bruce, Hyndsville	H. L. Odell, Sharon Springs
W. W. Burgett, Fultonham	E. S. Persons, Gilboa
C. S. Burnett, Summit	W. S. Rivenburgh, Middleburgh
L. Cross, Cobleskill	R. J. Roscoe, Cobleskill
Charles Dickinson, Seward	J. Rossman, Middleburgh
J. A. Dockstader, Sharon Springs	Edgar S. Simpkins, Middleburgh
C. K. Frazier, Cobleskill	Nathan Smith, Richmondville
Andrew J. Griffin, Carlisle	O. A. Snyder, Schoharie
William Hagadorn, Gilboa	James W. Tibbits, Eminence
Abram L. Haines, Schoharie	Charles H. Turner, Charlotteville
John Hotaling, Gallupville	J. H. Vrooman, North Blenheim
George Jackson, Hunter's Land	John H. Weckel, Breakabeen
E. L. Johnson, Central Bridge	Chas. E. Weidman, Gallupville
H. F. Kingsley, Schoharie	Henry D. Wells, Middleburgh
Ezra Lawyer, Cobleskill	Number of Members, 43.

MEDICAL SOCIETY OF THE COUNTY OF SCHUYLER.

(Organized December 29, 1857.)

MEETINGS.—Annual, second Tuesday in January; semi-annual, second Tuesday in July.

Officers. (January, 1898.)

W. H. Heist, *President*. J. Franklin Barnes, *Vice-President*.
 George M. Post, *Secretary and Treasurer*.
Censors: S. B. Allen, E. H. Davis, W. H. Heist,
 G. M. Post, George P. Laylor.
Delegate to State Medical Society: S. B. Allen.

Members.

S. B. Allen, Burdette	D. W. Birge, Hector
J. F. Barnes, Watkins	John Boyce, Weston
William H. Beach, Catharine	E. H. Davis, Elmira
R. Bell, Monterey	W. H. Heist, Townsend
M. L. Bennett, Watkins	George P. Laylor, Montour Falls

George M. Post, Montour Falls
D. W. Scutt, Watkins
O. B. Sherwood, Cayutaville

B. T. Smelzer, Albany
G. O. Smith, Odessa
H. P. Stillwell, Burdette
Number of Members, 16.

MEDICAL SOCIETY OF THE COUNTY OF SENECA.

MEETING.—Annual, second Thursday in May.

Officers. (1897.)

John F. Crossby, *President*. Edwin R. Bishop, *Vice-President*.
D. F. Everts, *Secretary*. Frank G. Seaman, *Treasurer*.

Censors: Elias Lester, George A. Bellows, E. W. Bogardus,
John Denniston, L. A. Gould.

Delegates to Societies: New York State Medical Society, Frank M. Severson; American Medical Association, Frederick W. Lester; Medical Association of Central New York, James H. Haslett, John F. Crosby, James Madden.

Members.

A. J. Alleman, McDougall's
T. E. Bamford, Willard
George A. Bellows, Waterloo
Edwin R. Bishop, ———
M. D. Blaine, Geneva
E. W. Bogardus, Seneca Falls
Harvey E. Brown, Fayette
J. F. Carlton, Waterloo
J. S. Carman, Lodi
George W. Clark, Waterloo
J. F. Crosby, Seneca Falls
John Denniston, Ovid
Richard Dey, Romulus
D. F. Everts, Romulus
John Flickinger, Trumansburg
Henry P. Frost, Willard
Louis A. Gould, Farmer
James Haslett, Waterloo

Elias Lester, Seneca Falls
Frederick W. Lester, Seneca Falls
P. J. McNamara, Seneca Falls
S. F. Mellen, Willard
James Madden
W. S. Nelson, Seneca Falls
Charles B. Osborne, Waterloo
J. O. Pangburn, Logan
George Post, Ovid
Wm. L. Russell, Willard
Frank G. Seaman, Seneca Falls
Frank M. Severson, Seneca Falls
William B. Stacey, Magee's Corners
J. H. Sternberg, Waterloo
William Steinach, Willard
J. M. Townsend, Townsendville
S. R. Wells, Waterloo
Number of Members, 34.

MEDICAL SOCIETY OF THE COUNTY OF STEUBEN.

MEETINGS.—Annual, second Tuesday in May; semi-annual, last Tuesday in October; quarterly, second Tuesday in August.

Officers. (1898.)

E. E. Webster, *President*. Thos. B. Fowler, *Vice-President*.
W. W. Smith, *Secretary and Treasurer*.

Censors: C. S. Parkhill, Ira P. Smith, Eli Allison,
M. T. Babcock, T. H. Pawling.

Delegates to State Medical Society: B. R. Wakeman, M. B. Hubbs.

Members.

Cassius M. Ackley, South Dansville
H. R. Ainsworth, Addison
P. L. Alden, Hammondsport
A. A. Aldrich, Addison
Eli Allison, Wayne

H. A. Argue, Corning
M. T. Babcock, Hammondsport
Benjamin A. Barney, Hammondsport
Robert Bell, Monterey

H. M. Bourne, Corning
 C. M. Brasted, Hornellsville
 B. H. Briggs, Avoca
 T. O. Burlison, Bath
 Marcus C. Butler, Corning
 Edward J. Carpenter, Corning
 Charles A. Carr, Corning
 D. J. Chittenden, Addison
 George Conderman, Hornellsville
 Willis S. Cobb, Corning
 Ray Dunham, Hornellsville
 Lewis Fitzsimmons, South Putney
 T. B. Fowler, Cohocton
 H. S. Gillett, Savona
 George S. Goff, Corning
 Charles W. Hoyt, Corning
 M. B. Hubbs, Addison
 Harvey P. Jack, Canisteo
 Ambrose Kasson, Bath
 J. G. Kelly, Hornellsville
 Frank H. Koyle, Hornellsville
 George W. Lane, Corning
 Thomas A. McNamara, Corning
 John D. Miller, Corning
 J. D. Mitchell, Hornellsville
 Samuel Mitchell, Hornellsville

H. B. Nichols, Pulteney
 W. E. Palmer, Hornellsville
 C. S. Parkhill, Hornellsville
 Myron H. Parkhill, Howard
 R. F. Parkhill, Howard
 C. Patterson, Avoca
 Thomas H. Pawling, Bath
 Charles R. Phillips, Hornellsville
 Emery C. Pixley, Bath
 Frank Ward Ross, Elmira
 Robert J. Scott, Prattsburgh
 I. P. Smith, Bath
 W. W. Smith, Avoca
 Frank H. Starr, Bath
 C. B. Stevens, Wallace
 P. K. Stoddard, Prattsburgh
 Stephen M. Switzer, Bradford
 V. B. Thorne, Woodhull
 C. J. Tomer, Savona
 H. L. Tyler, Corning
 Bertis R. Wakeman, Hornellsville
 James E. Walker, Hornellsville
 Eugene E. Webster, Hornellsville
 Seymour C. Williams, Canisteo
 E. Winnie, Haskinvile
 Number of Members, 60.

Deceased: E. H. Crittenden, Bath; W. W. Green, Prattsburgh.

MEDICAL SOCIETY OF THE COUNTY OF SUFFOLK.

(Organized July 22, 1806.)

MEETINGS.—Annual, in April, at Riverhead, during court week; semi-annual, in October, on the day and at the place directed at the April meeting.

Officers. (April, 1898.)

J. Richard Taylor, *President.* J. H. Benjamin, *Vice-President.*
 F. Everett Benjamin, *Secretary.* B. D. Skinner, *Treasurer.*
 J. H. Benjamin, *Librarian.*

Censors: S. Blume, A. Raynor, Charles E. Wells.

Delegate to State Medical Society: Samuel Blume.

Members.

Clarence A. Baker, Yaphank
 Lester C. Baldwin, Southold
 J. F. Bell, East Hampton
 F. Everett Benjamin, Shelter Island
 John H. Benjamin, Riverhead
 W. S. Bennett, Patchogue
 Samuel Blume, Riverhead
 George Campbell, Central Islip
 M. L. Chalmers, Port Jefferson
 Silas R. Corwith, Bridgehampton
 Robert G. Cornwall, Jamesport
 L. B. Edwards, Patchogue
 George T. Fanning, Stony Brook
 Hugh Halsey, Southampton

James L. Halsey, Islip
 Ed. H. Hamill, Newark
 W. W. Hewlett, Babylon
 Charles H. Hildreth, Southampton
 Clarence H. Hulse, Sayville
 William A. Hulse, Bay Shore
 C. D. Jones, Amityville
 A. B. Leggett, Babylon
 A. C. Loper, Greenport
 ——— Lewis, East Hampton
 Charles A. Luce, Amityville
 J. H. Maguire, Salem, Wash. Co.
 Clarence C. Miles, Greenport
 John Nugent, Southampton

Frank Overton, Patchogue	G. A. Smith, Central Islip
Edward F. Preston, Amityville	J. R. Taylor, Sag Harbor
Addison Raynor, Riverhead	Arthur H. Terry, Patchogue
B. F. Rogers, Eastport	H. P. Terry, Riverhead
Melville S. Skidmore, East Moriches	Charles E. Wells, Sag Harbor
Barton D. Skinner, Greenport	H. H. Young, Riverhead
	Number of Members, 38.

MEDICAL SOCIETY OF THE COUNTY OF SULLIVAN.

(Organized October 8, 1809.)

MEETINGS.—Annual, first Wednesday after the second Tuesday in June
semi-annual, whenever the Society directs at the annual meeting.

Officers.

Charles E. Piper, <i>President.</i>	W. W. Murphy, <i>Vice-President.</i>
Charles S. Payne, <i>Secretary.</i>	W. G. Steele, <i>Treasurer.</i>
<i>Censors:</i> F. A. McWilliams,	C. E. Piper, G. F. Rice.
<i>Delegate to State Medical Society:</i> W. W. Appley.	

Members.

W. W. Appley, Cohocton	Ridley C. Paine, Bethel
George M. Beakes, Bloomingburgh	Charles S. Payne, Liberty
J. A. Cauthers, Monticello	G. F. Perry, Woodbourne
E. Crocker, Narrowsburg	Charles E. Piper, Wurtsboro
J. F. Curlette, Mountaintale	G. F. Rice, Jeffersonville
W. H. DeKay, Hurleyville	W. F. Sherwood, Liberty
N. B. Johnson, Barryville	W. G. Steele, Mongaup Valley
S. A. Kemp, Callicoon	R. C. Tuttle, Rockland
G. H. Lathrop, Livingston Manor	W. S. Webster, Liberty
F. A. McWilliams, Monticello	J. L. Whitcomb, Liberty
	Number of Members, 20.

MEDICAL SOCIETY OF THE COUNTY OF TIOGA.

MEETINGS.—Annual, second Tuesday in January ; first quarterly, second
Tuesday in April ; semi-annual, second Tuesday in July ; second quarterly,
second Tuesday in October.

Officers. (January, 1898.)

C. L. Stiles, <i>President.</i>	Hiram L. Knapp, <i>Vice-President.</i>
R. D. Eastman, <i>Secretary.</i>	J. M. Barrett, <i>Treasurer.</i>
<i>Censors:</i> George M. Cady,	C. B. Washburn, C. L. Stiles,
James Allen,	C. R. Heaton.

Delegate to State Medical Society: George M. Cady.

Members.

James Allen, Richford	Walter C. Everett, Nichols
D. S. Anderson, Owego	W. H. Fisher, Spencer
W. L. Ayer, Owego	Henry A. Glover, Windham, Pa.
James M. Barrett, Owego	Charles F. Griswold, Barton
G. W. Beach, Apalachin	R. T. Gates, Newark Valley
Edward S. Beck, Owego	D. D. Harnden, Waverly
W. J. Burr, Newark Valley	R. S. Harnden, Waverly
George M. Cady, Nichols	A. J. Harris, Candor
C. W. Chidester, Weltonville	C. R. Heaton, Owego
J. E. Dixon, Candor	C. E. Hollenbeck, Halsey Valley
R. D. Eastman, Berkshire	W. E. Johnson, Waverly

Hiram L. Knapp, Newark Valley	C. L. Stiles, Owego
J. E. Leonard, Harford Mills	J. H. Tanner, Spencer
G. B. Lewis, Owego	S. W. Thompson, Owego
I. W. Lewis, Apalachin	J. T. Tucker, Waverly
William A. Moulton, Tioga Centre	C. P. Vosburg, Halsey Valley
A. T. Pearsall, Owego	I. S. Vreeland, Spencer
E. E. Pease, Nichols	C. B. Washburn, Spencer
A. W. Post, Tioga Centre	Number of Members, 87.

MEDICAL SOCIETY OF THE COUNTY OF TOMPKINS.

(Organized about 1815; reorganized October, 1862.)

MEETINGS.—Annual, last Wednesday in May; semi-annual, last Wednesday in November.

Officers.

John Winslow, *President*. Edward Meany, *Vice-President*.
W. H. Lockerby, *Secretary*. S. H. Peck, *Treasurer and Librarian*.

Censors: S. H. Peck, W. C. Gallagher, John Winslow,
Eugene Baker, Edward Meany.

Committee on Hygiene: B. G. Wilder, James Law.

Delegate to State Medical Society: Edward Meany.

Members.

Eugene Baker, Ithaca	E. O. Kyle, Ithaca
Judson Beach, Etna	W. H. Lockerby, Ithaca
Chauncey P. Biggs, Ithaca	Edward Meany, Ithaca
W. B. Brader, Ithaca	E. R. Osterhout, Newfield
C. C. Cook, Newfield	S. H. Peck, Ithaca
James P. Fahey, Ithaca	Burt G. Wilder, Ithaca
W. C. Gallagher, Slaterville	John Winslow, Ithaca
F. A. Krest, Trumansburg	Number of Members, 16.

Honorary Members.

Prof. S. H. Gage, Ithaca, Prof. James Law, Ithaca, Mrs. Gage.

MEDICAL SOCIETY OF THE COUNTY OF ULSTER.

MEETINGS.—Annual, last Tuesday in May, at Kingston; quarterly, second Tuesday in September, December, and March, at such places as the Committee Minora may direct.

Officers. (May, 1898.)

C. V. Hasbrouck, *President*. W. D. Hasbrouck, *Vice-President*.
E. E. Norwood, *Secretary*. E. H. Loughran, *Treasurer*.

Censors: J. Hasbrouck, E. H. Loughran, A. H. Mambert,
R. Crawford.

Committee on Hygiene: J. Chambers, R. Crawford,
C. W. Crispell, B. B. Bloom, C. A. Munn.

Delegates to State Medical Society: C. V. La Montayne, A. S. Vrooman.

Members.

Benjamin R. Bevier, Napanock	J. C. Bowser, Kingston
B. B. Bloom, Shokan	Charles S. Brower, Phoenix
J. Bougarty, Kingston	E. W. Carhart, Pine Hill
J. M. Bowman, Eddyville	Jacob Chambers, Kingston

Daniel Connelly, Kingston
 H. Craft, Stone Ridge
 Rufus Crawford, West Camp
 C. W. Crispell, Rondout
 S. L. Dawes, Saugerties
 John A. Decker, Ulster Park
 J. F. S. Eastgate, Ellenville
 J. Freston, Milton
 E. J. Gallagher, Kingston
 A. C. Gates, Kingston
 W. W. Hadley, Stone Ridge
 C. V. Hasbrouck, Rosendale
 J. Hasbrouck, Port Ewen
 W. D. Hasbrouck, Rondout
 P. D. B. Hoornbeck, Wawarsing
 J. E. D. Hoornbeck, Kerhonkson
 T. O. Keator, Accord
 C. D. La Montayne, Port Ewen
 George S. La Moree, Highland

E. H. Loughran, Kingston
 R. Loughran, Kingston
 A. H. Mambert, Rondout
 C. T. Montgomery, Glasco
 Charles A. Munn, Kingston
 R. M. Murphy, Rondout
 E. E. Norwood, Kingston
 A. H. Palmer, Marlborough
 A. Reed, Highland
 S. Schoonmaker, Melrose, Fla
 W. C. Sebring, Kingston
 A. A. Stern, Rondout
 G. H. Van Gaasbeck, Shokan
 H. Van Hoevenburgh, Kingston
 Alfred S. Vrooman, High Falls
 J. S. Wade, West Hurley
 J. Wolf, Rondout
 J. D. Wurtz, Kingston
 J. McF. Winfield, Brooklyn
 Number of Members, 46.

MEDICAL SOCIETY OF THE COUNTY OF WARREN.

MEETINGS.—Annual, second Tuesday in June, at Lake George; semi-annual, when and where the Society determines.

Officers.

G. R. Martine, *President*. D. J. Fitz Gerald, *Vice-President*.
 G. H. McMurray, *Secretary*. Elias Bibby, *Treasurer*.

Censors: A. H. Phelps, D. M. Hall, D. B. Howard.

Delegate to State Medical Society: R. J. Eddy, Glens Falls.

Members.

F. A. Aldrich, Chestertown
 G. H. Aldrich, Stony Creek
 W. W. Aldrich, Weavertown
 Elias Bibby, Glens Falls
 L. Charette, Warrensburgh
 R. J. Eddy, Glens Falls
 Frederick G. Fielding, Glens Falls
 D. J. Fitz Gerald, Glens Falls
 D. M. Hall, Glens Falls
 D. B. Howard, Warrensburgh

W. J. Hunt, Glens Falls
 C. J. Loggins, Weavertown
 A. Mallory, Chestertown
 G. H. McMurray, Glens Falls
 G. R. Martine, Glens Falls
 A. H. Phelps, Glens Falls
 F. H. Stevens, Lake George
 Buel G. Streeter, Glens Falls
 Fred B. Streeter, Glens Falls
 Number of Members, 19.

MEDICAL SOCIETY OF THE COUNTY OF WASHINGTON.

(Organized July 1, 1806.)

MEETINGS.—Annual, third Tuesday in May, at Argyle; semi-annual, first Tuesday in October.

Officers. (May, 1898.)

W. A. Tenney, *President*. George M. Stillman, *Vice-President*.
 Henry Root, *Secretary and Treasurer*.

Censors: G. H. Whitcomb, S. J. Banker, D. C. McKenzie.

Committee on Hygiene: James T. Park, Samuel Pashley,
 W. C. Cuthbert.

Delegate to State Medical Society: John Millington.

Members.

O. C. Baker, Brandon, Vt.	Charles E. Lambert
S. J. Banker, Fort Edward	J. Lambert, Salem
Franklin T. Beattie, Shusan	W. B. Madison, West Hebron
F. H. Braymer, Knoxville, Tenn.	J. H. Maguire, Salem
Frank H. Carpenter, West Rupert	D. C. McKenzie, Granville
J. Cipperly, Middle Falls	William B. Melick, Fort Edward
James S. Cooley, Glen Cove	J. Millington, East Greenwich
W. C. Cuthbert, Sandy Hill	H. C. Monroe, Sandy Hill
R. C. Davies, Middle Granville	I. T. Munroe, Granville
C. J. Farley, Saranac Lake	G. B. Murray, Greenwich
Fred G. Fielding, Glens Falls	James T. Park, Sandy Hill
S. J. Finch, Fort Ann	Samuel Pashley, Hartford
H. Gray, Greenwich	W. H. Renois, East St. Louis, Ill.
John S. Guinan, Whitehall	Henry Root, Whitehall
P. Z. Hebert, London, Eng.	B. C. Senton, Rutland, Vt.
R. H. Heenan, Sandy Hill	J. C. Sill, Argyle
R. B. Holcomb, Whitehall	George M. Stillman, Argyle
S. B. Irwin, West Hebron	W. A. Tenny, Granville
Edward Joslin, Whitehall	T. C. Wallace, Cambridge
Charles W. Keefer, Mechanicville	G. H. Whitcomb, Greenwich
J. Knowlson, Poultney, Vt.	A. M. Young, Salem

Number of Members, 42.

Deceased : John Jones, Middle Granville, October 23, 1897, æt. 33.

MEDICAL SOCIETY OF THE COUNTY OF WAYNE.

(Organized July 2, 1828.)

MEETINGS.—Annual, second Tuesday in July, at Lyons; semi-annual, third Tuesday in January, at Newark.

Officers.

J. W. Atwood, <i>President</i> .	Mary A. Brownell, <i>Vice-President</i> .	
A. A. Young, <i>Secretary</i> .	Darwin Colvin, <i>Treasurer</i> .	
<i>Censors</i> : J. N. Arnold,	M. A. Veeder,	W. J. Hennessy,
	N. E. Langdon.	

Delegate to State Medical Society : M. A. Veeder.

Members.

J. N. Arnold, Clyde	M. W. T. Negus, South Sodus
J. W. Atwood, Marion	W. F. Nutton, Newark
G. D. Barret, Clyde	James W. Putnam, Lyons
Frank Barton, Clyde	H. N. Roberts, Newark
Mary A. Brownell, Newark	H. F. Seaman, Alton
H. N. Burr, Walworth	A. F. Sheldon, Lyons
M. E. Carmer, Lyons	J. E. Smith, Clyde
Robert S. Carr, Williamson	L. H. Smith, Palmyra
H. L. Chase, Palmyra	J. L. Sprague, Williamson
Darwin Colvin, Clyde	C. H. Towlerton, Lyons
Geo. A. Craft, Newark	Jennie M. Turner, Lyons
E. H. Draper, Wolcott	M. A. Veeder, Lyons
T. H. Hallett, Clyde	E. E. Williams, Clyde
W. J. Hennessy, Palmyra	F. L. Wilson, Sodus Point
D. B. Horton, Red Creek	George D. York, Huron
N. E. Langdon, Newark	A. A. Young, Newark
Frank Myers, Sodus	Number of Members, 33.

MEDICAL SOCIETY OF THE COUNTY OF WESTCHESTER.

(Organized May 8, 1797.)

MEETINGS.—Annual, third Tuesday in May, at White Plains; stated, third Tuesday in September, November, January and March. (Time and place of stated meetings at option of the Society.)

Officers. (May, 1898.)

R. Condit Eddy, *President.* William D. Granger, *Vice-President.*
George A. Peck, *Secretary.* Robert T. Howe, *Treasurer.*
Newton F. Curtis, *Curator.*

Censors: H. E. Smith, Arch. M. Campbell, Newton F. Curtis.

Committee on Hygiene:

W. H. Sherman, Ralph W. Parsons, Philander Collard.

Committee on Tuberculosis:

E. F. Brush, Samuel Bergen, W. F. Greene, S. E. Getty.

Committee on Legislation:

Chas. Mason, Wm. M. Carhart, W. A. Miner, Henry Moffat,
T. Passmore Berens.

Committee on Necrology:

E. M. Hermance, S. Oscar Myers.

Auditing Committee:

J. F. Chapman, R. T. Irvine, E. I. Harrington.

Delegates to State Medical Society:

H. F. Hart, Evarts M. Morrell, M. W. Barnum.

Members.

Frank A. Augur, Mt. Kisco
G. B. Balch, Yonkers
Lester C. Baldwin, Bedford
Garrett N. Banker, Yonkers
A. T. Banning, Mt. Vernon
M. W. Barnum, Sing Sing
W. A. Bell, Yonkers
A. C. Benedict, Yonkers
Charles S. Benedict, 310 W. 102d st,
New York
James C. Bennett, Yonkers
T. P. Berens, New Rochelle
L. E. Bertine, Mt. Vernon
Samuel Beyea, New Rochelle
J. W. Bowden, Yonkers
E. N. Brand, Hastings-on-Hudson
H. Beattie Brown, Yonkers
L. H. Brown, Buchanan
Valentine Browne, Yonkers
E. F. Brush, Mt. Vernon
W. E. Bullard, 113 E. 40th st, New
York
Clarence W. Buckmaster, Yonkers
P. S. Byrne, Yonkers
P. A. Callan, Yonkers

W. M. Carhart, Peekskill
A. M. Campbell, Mt. Vernon
Stuart B. Carlisle, Mt. Vernon
Elon N. Carpenter, Mamaroneck
W. J. Carpenter, Katonah
T. B. Carter, Mt. Vernon
D. L. Casselmann, Purdy's Station
Charles F. Chapman, Mt. Vernon
J. F. Chapman, Katonah
George B. Clark, Armonk
E. M. Clark, Mamaroneck
Philander Collard, Sing Sing
E. E. Colton, Yonkers
W. S. Coons, Yonkers
R. B. Coutant, Tarrytown
James H. Curry, Shrub Oak
G. T. M. Curry, Mt. Kisco
Andrew F. Currier, Mt. Vernon
Newton F. Curtis, White Plains
F. W. Dalrymple, New Rochelle
H. G. V. De Hart, White Plains
Robert H. Dinegar, Mt. Vernon
Joseph W. Droogan, Westchester
E. F. Duffy, Yonkers
Carroll Dunham, Irvington

A. B. Eckerson, Mt. Vernon
 Robert Condit Eddy, New Rochelle
 W. S. Fleming, Mt. Vernon
 N. H. Freeland, Tarrytown
 J. B. Fulton, Irvington
 S. E. Getty, Yonkers
 J. T. Gibson, Yonkers
 Fred. R. Glover, Mt. Vernon
 Thomas F. Goodwin, Mt. Vernon
 William D. Granger, Bronxville
 William F. Green, Mt. Vernon
 Daniel F. Griffin, Portchester
 E. I. Harrington, Yonkers
 Hickson F. Hart, Shrub Oak
 E. M. Hermance, Yonkers
 P. L. Hitchcock, Croton Falls
 Adolph Hoerr, East View
 Stephen F. Horton, Peekskill
 Robert T. Howe, Mt. Vernon
 Robert T. Irvine, Sing Sing
 N. K. Jamal, Yonkers
 John P. Janinski, Mt. Vernon
 John H. Jenkin, Shrub Oak
 Louis Jeschnisky, Mt. Vernon
 David John, Yonkers
 George Q. Johnson, Ardsley
 Le Baron W. Jones, Pleasantville
 C. H. Judson, Dobbs Ferry
 Miriam Billing Kennedy, Yonkers
 John A. Knapp, Mt. Vernon
 C. P. Knapp, White Plains
 Charles A. Knight, Peekskill
 C. C. Knight, Peekskill
 Carl H. Kroeber, Yonkers
 Stephen F. Leo, Yonkers
 J. J. Lewin, Port Chester
 Z. E. Lewis, New Rochelle
 John J. Linson, Tarrytown
 Frank B. Littlewood, New Rochelle
 D. C. Loewenstine, Rye
 F. R. Lyman, Hastings-on-Hudson
 E. De Mott Lyon, Peekskill
 George H. Magness, White Plains
 J. N. Martin, Mamaroneck
 Charles Mason, Peekskill
 W. J. McDermott, Westchester
 B. W. McNichol, Westchester
 C. S. Mead, Portchester
 S. F. Mellen, Willard, N. Y.
 Francis S. Merriam, Mt. Vernon
 Charles A. Miles, Yonkers
 W. N. Miller, Croton-on-Hudson
 W. A. Miner, Sing Sing
 Henry Moffat, Yonkers
 E. M. Morrell, 1 Madison av, New York

George S. Mooney, Yonkers
 Bernard E. Mulligan, Yonkers
 S. O. Myers, Mt. Vernon
 W. H. Neilson, New Rochelle
 Edward S. Newell, Mt. Vernon
 Charles W. Oakes, Williamsbridge
 Patrick W. O'Brien, Peekskill
 Daisy Orleman, Peekskill
 John Parsons, Kingsbridge
 Ralph W. Parsons, Sing Sing
 J. B. Pascoe, 251 E. 17th st, New York
 H. F. Patch, Chappaqua
 J. D. Patterson, Wakefield
 John C. Pearson, Westchester
 George A. Peck, New Rochelle
 T. D. W. Pinckney, Williamsbridge
 J. L. Porteous, Yonkers
 P. H. Pyne, Yonkers
 Sue Radcliff, Yonkers
 C. N. Raymond, New Rochelle
 Charles Rich, Yorktown Heights
 Achilles Rose, 336 E. 15th st, New York
 Ben. Jerome Sands, Port Chester
 Norton J. Sands, Port Chester
 C. J. Schneider, 241 E. 48th st, New York
 H. E. Schmid, White Plains
 Emil Schopen, Yonkers
 T. F. Sharkey, Mt. Vernon
 Frank W. Shipman, Mt. Vernon
 E. Sholderfer, Yorktown Heights
 Edward F. Sheehan, Sing Sing
 W. H. Sherman, Yonkers
 Elizabeth C. Sleight, Mt. Vernon
 H. Eugene Smith, Mt. Vernon
 J. W. Smith, Tuckahoe
 Alex. O. Snowden, Peekskill
 Percy C. Snowden, Peekskill
 Oscar J. Stafford, Port Chester
 William H. Stowe, Cross River
 Fred. H. Strong, Yonkers
 E. B. Tefft, New Rochelle
 George E. Thomes, Port Chester
 John C. Todd, Tarrytown
 W. H. Todd, Dobbs Ferry
 Nathan P. Tyler, New Rochelle
 Sara W. Vanderbeek, New Rochelle
 John W. Vincent, Mt. Vernon
 Nathan A. Warren, Yonkers
 Charles T. Washburn, Pelham Manor
 G. C. Weiss, Mt. Vernon
 W. L. Wells, New Rochelle
 Charles C. Zacharie, White Plains
 Number of Members, 155.

Deceased: Elizabeth H. Bates, Port Chester; William H. Helm, Sing Sing, February 5, 1898, set. 58; S. H. McIlroy, Mott Haven; Louis M. Root, Tarrytown.

MEDICAL SOCIETY OF THE COUNTY OF WYOMING.

MEETING.—Annual, second Tuesday in June.

Members.

George M. Blackmore, Pike
 F. E. Bliss, Warsaw
 William M. Boddy, North Java
 S. S. Kennedy, Varysburg
 Zera J. Lusk, Warsaw
 W. N. Martin, Cowlesville
 R. W. Miller, Castile

Samuel S. Miller, Java
 George F. Palmer, Warsaw
 Lucius W. Peck, Arcade
 Robert Rae, Portageville
 S. Chester Smith, Castile
 Horatio Spencer, Pike
 Number of Members, 18.

MEDICAL SOCIETY OF THE COUNTY OF YATES.

MEETINGS.—Annual, first Tuesday in June; semi-annual, second Tuesday in January. Other meetings as directed by the Society.

Officers.

Chas. M. Van Dyke, *President*. ————, *Vice-President*.
 Albert Ellison, *Secretary*. Byron B. Havens, *Treasurer*.
Censors: N. L. Lusk, J. M. Waddell, William A. Oliver.

Delegate to State Medical Society: Charles M. Van Dyke.

Delegates to Medical Association of Central New York:

Members.

Marquis C. Babcock, Branchport
 G. W. Brundage, West Dresden
 Charles E. Doubleday, Penn Yan
 Albert Ellison, Benton Centre
 Cyrus C. Harvey, Dundee
 Byron B. Havens, Penn Yan
 Schuyler Lott, Bellona
 John M. Maloney, Dundee
 O. E. Newman, Porter Centre
 William Oliver, Penn Yan

William A. Oliver, Penn Yan
 A. R. Otis, Dundee
 E. M. Schearer, Penn Yan
 W. N. Skinner, Rushville
 Nelson A. Sloan, Dresden
 E. S. Smith, Dresden
 C. M. Van Dyke, Himrods
 James M. Waddell, Penn Yan
 J. H. Wilkin, Rushville
 Number of Members, 19.

INCORPORATED VOLUNTARY MEDICAL SOCIETIES.

(By-laws, Chapter 1, Section 2.)

MEDICAL ASSOCIATION OF NORTHERN NEW YORK.

(Organized 1872; incorporated 1889.)

Annual meeting, second Tuesday in October, at Malone.

Officers.

W. S. Daly, *President*. T. A. Pease, *Vice-President*.
 R. J. Wilding, *Secretary*. T. Gay, *Treasurer*.
Trustees: T. Gay, C. Skinner, J. H. Smith,
 D. S. Kellogg, T. A. Pease, G. H. Oliver.

Delegate to State Medical Society: E. S. McClellan.

Members.

A. H. Allen, Gouverneur	F. Kinsley, Peru
F. A. Anderson, Massena	A. M. Larkin, Norwood
C. W. Arthur, Plattsburgh	E. A. La Rocque, Malone
A. W. Atwater, St. Regis Falls	J. H. La Roche, Plattsburgh
C. B. Barber, Keeseville	E. M. Lyon, Plattsburgh
C. C. Bartholomew, Ogdensburg	E. S. McClellan, Saranac Lake
J. O. A. Beaupre, Malone	W. Madron, Ogdensburg
F. H. Brewer, Madrid	G. C. Madill, Ogdensburg
E. H. Bridges, Ogdensburg	O. McFadden, Massena
M. D. Briggs, Champlain	J. G. McKinney, Schuyler Falls
S. E. Brown, Ogdensburg	F. Madden, Plattsburgh
J. H. Brownlow, Ogdensburg	G. W. Major, Montreal, P. Q.
J. H. Cameron, Brasher	C. Marshall, Huntington, P. Q.
H. H. Carpenter, Lawrenceville	W. C. Mills, Chateaugay
M. S. Carpenter, Chateaugay	T. B. Nichols, Plattsburgh
S. B. Close, Gouverneur	G. H. Oliver, Malone
W. E. Clough, West Chazy	C. E. Pearl, North Bangor
G. C. Cole, Potsdam	T. A. Pease, Norwood
C. J. Crippen, Trout River	H. Poland, Westport
F. W. Crocker, Jr., Lawrence	A. Proudfoot, Montreal, P. Q.
W. S. Daly, Ogdensburg	J. B. Ransom, Dannemora
L. C. Dodge, Rouse's Point	J. Reynolds, Potsdam
P. F. Dolphin, Malone	H. H. Reynolds, Ellenburgh
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J. Q. Flood, Hopkinton	C. D. Silver, Chateaugay
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G. Howe, Chateaugay	P. M. Wise, Ogdensburg
R. F. Hutchins, Ogdensburg	I. Wood, Black Brook
R. E. Hyde, Beekmantown	D. B. Woodward, Ellenburgh
D. S. Kellogg, Plattsburgh	

Number of Members, 85.

ROCHESTER PATHOLOGICAL SOCIETY.

(Delegate admitted 1890.)

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ELMIRA ACADEMY OF MEDICINE.

(Delegate admitted 1891.)

Officers.

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(Delegate admitted 1891.)

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Number of Members, 69.

UTICA MEDICAL CLUB.

(Delegate admitted 1892.)

Officers.

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Delegate to State Medical Society: M. J. Davies.

SOCIETY OF PHYSICIANS OF CANANDAIGUA.

(Delegate admitted 1892.)

Officers.

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*Directors: E. J. Gillette, A. L. Beahan, J. H. Jewett, H. C. Buell, O. J. Hallenbeck.**Delegate to State Medical Society: J. H. Jewett.*

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Number of Members, 8.

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Noah T. Clarke, Ph.D.
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(Delegate admitted 1898.)

Officers.

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Mary J. Slaughter, *Secretary.*

Eveline P. Ballantine, *Vice-President.*
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Delegate to State Medical Society: Evylin Baldwin.

(Where no town is mentioned Rochester is to be understood.)

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Number of Members, 17.

SYRACUSE ACADEMY OF MEDICINE.

(Delegate admitted 1894.)

Officers.

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Delegate to State Medical Society: A. B. Breese.

LONG ISLAND MEDICAL SOCIETY.

(Delegate admitted 1895.)

Officers.

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Palmer Townsend
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Number of Members, 45.

AMSTERDAM MEDICAL SOCIETY.

Edmund F. Bronk, *President*. Richard G. Johnson, *Vice-President*.
 Archibald Gilbert, *Secretary and Treasurer*.

Executive Committee : Edmund F. Bronk, Archibald Gilbert, S. H. French.

Delegate to State Medical Society : E. F. Bronk.

MEDICAL ASSOCIATION OF THE CITY OF MT. VERNON AND ENVIRONS.

(Delegate admitted 1895.)

Officers.

Arch. T. Banning, *President*. W. H. Pound, *Vice-President*.
 G. C. Weiss, *Secretary*. George A. Peck, *Treasurer*.
 Frederick R. Glover, *Curator*.

Censors : Arch. T. Banning, George C. Weiss, C. W. Oakes.

Delegate to State Medical Society : George A. Peck.

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